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DOCUMENTS SECTION

PENNSYLVANIA
DEPARTMENT OF COMMERCE
STATE PLANNING BOARD

CHEMICAL CHARACTER OF SURFACE WATER IN PENNSYLVANIA

1946 TO 1949

PREPARED IN COOPERATION WITH
UNITED STATES GEOLOGICAL SURVEY
AND
PENNSYLVANIA DEPARTMENT OF
FORESTS & WATERS

PY P712, 17/9
no. 23

PUBLICATION 23

JUNE 1951

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APRIL 1952

PYP712, 17/9
[no. 24]

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STATE PLANNING BOARD

Chemical Character of Surface Water in Pennsylvania 1946 -1949

by
WALTER F. WHITE, JR.
U. S. GEOLOGICAL SURVEY

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Prepared in cooperation with the
Pennsylvania Department of Forests and Waters
and
The United States Geological Survey

1951

APRIL 1952

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[no. 24]
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INTRODUCTION AND ACKNOWLEDGMENTS

Recognizing the need of industry for adequate and reliable data on the chemical quality of the water in Pennsylvania's streams, the Pennsylvania Department of Commerce through its State Planning Board entered into a cooperative agreement in 1944 with the United States Geological Survey for the purpose of obtaining systematic records of the chemical characteristics of the surface waters throughout the Commonwealth. The results of these studies covering the period July 1944 through September 1946 were published in a report (Publication 17) of the State Planning Board titled "Industrial Utility of Water in Pennsylvania -- Chemical Character of Surface Water, 1944-46."

Since 1946, the State Planning Board and the United States Geological Survey have continued their water quality program. It has been during this period that Pennsylvania has shown a progressive determination to rid the streams of the Commonwealth of pollution. Additional needs of the Pennsylvania Departments of Forests and Waters and of Health for water quality data in their pollution abatement studies have resulted in more extensive sampling than previously undertaken.

This publication contains all chemical quality data obtained in Pennsylvania October 1946 through September 1949 under the cooperative programs between the U. S. Geological Survey, the Pennsylvania Department of Forests and Waters and the State Planning Board of the Pennsylvania Department of Commerce. Through Mr. J. W. Mangan, Chief of the Division of Hydrology of the Department of Forests and Waters and District Engineer of the U. S. Geological Survey, much assistance has been received in connection with planning programs, coordinating State and Federal activities, and providing data about water discharges. The water analyses were made in Geological Survey laboratories in Washington, D. C., and in Philadelphia and Schuylkill Haven, Pennsylvania, under the general direction of S. K. Love, Chief Quality of Water Branch, and immediate supervision of Walter F. White, Jr., District Chemist.

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INDUSTRY AND WATER QUALITY

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The range and variety of activity and enterprise of which man is capable is well illustrated in Pennsylvania. Raw materials, man power and market outlets--factors of natural resources, production and consumption--make Pennsylvania outstanding as a leader in the nation because of their abundance in the Commonwealth. To remain prosperous however, it is necessary to conserve and utilize effeciently these natural resources. It has been said that water is as essential to man as air and food. He drinks it to live, he uses it for transportation, for disposal of waste products, for production of power, as a raw material, for cooling, for fire protection, for recreation, for the growing of agricultural products. As the uses of water increase the future well-being and prosperity of a region will depend more and more upon the continuous availability of comprehensive data on the occurrence, use and quality of water within the region. Such data provide a basis for reliable and equitable apportionment of the water between the multiple purposes for which this vital fuild is utilized.

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There is an abundant source of water within Pennsylvania. It is the precipitation, chiefly in the form of rain, snow and hail, which recurs each year within reasonably well-defined limits. The value of this water is determined by its use between the times when it first arrives as precipitation and finally leaves the boundaries of the Commonwealth as surface and underground drainage. Some of the water returns to the atmosphere by evaporation or transpiration; some soaks into the ground to be used by vegetation, or to collect in underground storage for recovery through wells or later return to streams; some runs off the land and flows out of the Commonwealth by means of the great system of streams

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that drain the water to the oceans. Tremendous quantities of water are used in Pennsylvania for many domestic, industrial, agricultural, and recreational purposes. Today, the per capita consumption of water in many of our cities ranges from about 125 to more than 200 gallons per day. Approximately 60 gallons of water are required for each ton of bituminous coal mined, and 5,000 to 85,000 gallons of water for each ton of paper produced. The production of rayon or finished woolens requires from 70 to 160 gallons of water per pound. Millions of gallons of water are used daily by the industries of Pennsylvania.

Water is practically a universal solvent, and as such, has a tendency to retain some part of almost every substance with which it comes in contact. Appraisal of the suitability of water for many industrial, agricultural and domestic purposes is dependent to a large extent upon a knowledge of the chemical quality of the water. Industrial uses of water in Pennsylvania are many and of such diversified nature that determination of the suitability of water for a particular use is sometimes complicated and difficult. Different industrial processes requiring the use of water are affected by various constituents and their concentration in the water. A part of the cost of a product is related to the cost of the equipment required to make water suitable for use. Selection of the type of equipment and its design for economical operation are based in part on the chemical character of the water to be used. Many tests are used to determine the suitability of water for special purposes, some of which are discussed in a following section entitled "Source and Significance of Chemical and Physical Constituents."

Due to the very nature of occurrence of surface waters, it is inevitable that variations in chemical characteristics of streams should arise from time to time and from place to place. There are many factors which affect in some degree the chemical quality of water in Pennsylvania's streams. Some relate to natural conditions such as precipitation, topography, geology and vegetation. Others are connected with human activities such as use of streams for disposal of sewage and industrial wastes, diversion for water supply and other uses. Determination of the chemical quality of surface waters therefore requires a coordinated plan of study based on systematic collection of samples for chemical analysis which takes into account the many and complicated effects of

all these factors. The plan of this study is designed to furnish comprehensive analytical data at certain strategically located points within each large river system of the Commonwealth, and to provide means for making reliable estimates at other points. The study of each large river system calls for the establishment of a station for daily collection of samples near the lower end of the system in order that the analyses may provide a continuous record of the overall effect of the many factors that influence the chemical character of the water. With this record as a base, there can be built up within the basin an interlocking network of other daily sampling stations, or other sampling studies that progressively aid one another in providing means for estimating the chemical character at nearly any place in the river system.

The above generalized statements give information about industry and the relation of quality of surface waters to their industrial uses. Publication 17 of the State Planning Board entitled "Industrial Utility of Waters in Pennsylvania --Chemical Character of Surface Water, 1944-46" gives considerably more information about the requirements of industry for water, the factors affecting chemical quality, and the program of water study now being carried out. It also contains the data obtained between July 1, 1944 and September 30, 1946. The present report makes available the data on chemical quality of surface waters in Pennsylvania that have been obtained in the period from October 1, 1946 through September 30, 1949.

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TESTS COMMONLY MADE FOR WATER ANALYSES.

TEST	A	B	C	D
1. Bacteriological examinations				
2. Organic nitrogen				
3. Albuminoid nitrogen				
4. Ammonia nitrogen				
5. Nitrite				
6. Taste and odor				
7. B. O. D.				
8. Dissolved oxygen				
9. Oxygen consumed				
10. Turbidity				
11. Manganese				
12. Iron				
13. Fluoride				
14. Color				
15. pH				
16. Nitrate				
17. Chloride				
18. Alkalinity or acidity				
19. Dissolved solids				
20. Hardness				
21. Sulfate				
22. Magnesium				
23. Calcium				
24. Specific conductance				
25. Sodium				
26. Potassium				
27. Silica				
28. Boron				

A. Tests for determining sanitary quality of potable or polluted waters.

B. Tests for determining suitability of water for industrial uses.

C. Tests for determining the suitability of water for agricultural uses.

D. Tests for determining geological relations of natural surface and ground waters.

SOURCE AND SIGNIFICANCE OF CHEMICAL AND PHYSICAL CHARACTERISTICS OF WATER

Analyses of water are made for many purposes. A variety of chemical, physical or bacteriological tests may be required in order to show whether a water is satisfactory for the purpose for which it is to be used. This may be illustrated by the chart on the opposite page which shows some of the tests commonly made to determine the suitability of a water for the general purposes indicated.

Analyses that are ordinarily made to determine whether a water is safe for human consumption do not always provide sufficient information for determining the industrial utility of the water. However, it is usually true that water which is satisfactory for public water supplies can economically be made satisfactory for most industrial uses. Drinking water must not contain harmful organisms nor toxic salts. Also, drinking water should be clear, colorless, odorless, and pleasant to the taste so that the consumer will not be tempted to drink an unsafe water merely because it has a better appearance, or a more pleasant taste. Industrial waters must not contain constituents which adversely affect the use of the water in the industrial process. The characteristics and mineral constituents of natural waters here considered include those generally found to have practical effect on the value of the water for most industrial uses.

COLOR.--In water analysis the term "color" refers to the appearance of water that is free from suspended solids. Water for domestic use and some industrial uses should be free from perceptible color. Natural color in surface waters is caused almost entirely by organic matter extracted from plants and minerals. At many places, however, high color in water results from industrial wastes and sewage. A color less than 10 usually passes unnoticed. Some swamp waters have natural color of 200 to 300.

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HYDROGEN-ION CONCENTRATION (pH).--The intensity of acidity or alkalinity of a water, as indicated by the hydrogen-ion concentration, is of importance with reference to corrosive properties of water, and to proper treatment for coagulation at water-treatment plants. The symbol pH is commonly used to indicate the hydrogen-ion concentration. It represents the negative logarithm of the number of moles of ionized hydrogen per liter of water. A neutral water has a pH of 7.0. The pH of most natural waters varies between 6.0 and 8.0. Some alkaline waters have pH values greater than 8.0 and waters containing free mineral acid have values less than 4.5.

SPECIFIC CONDUCTANCE (micromhos at 25° C.).--The specific conductance of a water is a measure of its ability to conduct a current of electricity. It varies with the concentration and degree of ionization of the different minerals in solution. When considered in conjunction with results of determinations for other constituents, specific conductance plays an important part in revealing changes in concentration of the total dissolved minerals in surface waters.

SILICA (SiO_2).--Silica is dissolved from practically all rocks. A few natural waters contain less than 3 parts per million of silica and some contain more than 50 parts, but most of them contain from 10 to 30 parts per million. Silica affects the usefulness of a water since it contributes to the formation of troublesome deposits on boiler tubes and steam turbine blades.

ALUMINUM (Al) and **MANGANESE** (Mn).--Aluminum and manganese are not regularly determined in the practical analyses of water. However, acid waters may have relatively large quantities of these constituents, which can be troublesome in certain cases. Manganese is especially injurious in laundry work and in textile processing that involves washing.

IRON (Fe).--Iron is dissolved from many rock materials. On exposure to the air, water that contains more than about 1 part per million of iron soon becomes turbid with the insoluble compound produced by oxidation; surface waters rarely contain as much as 1 part per million of dissolved iron. Some acid waters, however, carry large quantities of iron in solution. Excessive iron causes stains on white

porcelain, or enameled ware and fixtures and on clothing or other fabrics washed in the water. Iron is troublesome in water used for many industrial purposes.

CALCIUM (Ca).--Calcium is dissolved from practically all rocks, but particularly from limestone, dolomite and gypsum. Calcium and magnesium make water hard and are active agents in forming boiler scale. Most waters from granite contain less than 10 parts per million of calcium; many waters from limestone contain from 30 to 70 parts; and waters that leach deposits of gypsum may contain more than 100.

MAGNESIUM (Mg).--Magnesium is dissolved from many rocks but particularly from dolomite. Its effects are similar to those of calcium, but waters that contain much magnesium and its chloride are likely to be corrosive, especially in steam boilers. The magnesium in soft waters may amount to only 1 or 2 parts per million, but water in areas that contain large quantities of dolomite may contain 20 to 50 parts per million.

SODIUM and POTASSIUM (Na and K).--Sodium and potassium are dissolved from practically all rocks, but they make up only a small part of the dissolved mineral matter in most waters in humid regions. Natural waters that contain only 3 or 4 parts per million of the two together are likely to carry about equal quantities of sodium and potassium. As the total quantity of these constituents increases, the proportion of sodium becomes greater. Moderate quantities of these constituents have little effect, but waters that carry more than 50 or 100 parts per million of the two may require careful operation of steam boilers to prevent foaming. Waters that contain large quantities of sodium salts also injure crops. Some waters contain so much sodium that they are unfit for nearly all uses.

CARBONATE (CO_3) and BICARBONATE (HCO_3).--Carbonate and bicarbonate occur in waters largely through the action of carbon dioxide, which enables the water to dissolve carbonates of calcium and magnesium. Carbonate is not present in appreciable quantities in many natural waters. The bicarbonate in waters that come from insoluble rocks may amount to less than 10 parts per million. Many waters from limestone contain from 200 to 400 parts per million, and certain waters that contain sodium bicarbonate may carry 1,000 or more parts of bicarbonate per million. The bicarbonate, as such, has comparatively little harmful effect, although a large

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quantity may make water unsatisfactory for drinking and for other domestic uses.

SULFATE (SO_4)...Sulfate is dissolved in large quantities from gypsum and from deposits of sodium sulfate. It is also formed by the oxidation of sulfides of iron and is therefore present in considerable quantities in waters from mines and from many beds of shale. Sulfate in waters that contain much calcium and magnesium causes the formation of hard scale in steam boilers and may increase the cost of softening the water.

CHLORIDE (Cl).--Chloride is dissolved in small quantities from rock materials in most parts of the country. Chloride in waters generally has little effect on their use unless present in quantities exceeding a few hundred parts per million.

FLUORIDE (F).--Fluoride has been reported as present in rocks to about the same extent as chloride. However, the quantity present in natural waters is usually much less than that of chloride. Fluoride in water is known to be associated with the dental defect known as mottled enamel, if the water is used for drinking by young children during calcification or formation of the teeth. This condition becomes more noticeable as the quantity of fluoride in water increases above 1 part per million. It is, however, reported that the incidence of dental caries (decay of teeth) is decreased by quantities of fluoride that are not sufficient to cause permanent disfigurement from mottled enamel.

NITRATE (NO_3).--Nitrate in water is considered a final oxidation product of nitrogenous substances from sewage or other organic material. However, industrial wastes from explosives and fertilizer plants may contain appreciable quantities of nitrate salts. It is reported that a nitrate concentration in excess of about 45 parts per million nitrate (as NO_3) in water consumed by infants has been directly connected with methemoglobinemia, a condition in which the surface of the body of the infant becomes blue because of insufficient aeration of the blood and which may prove fatal if not treated promptly. Unpolluted surface waters seldom have more than a few parts per million of nitrate.

DISSOLVED SOLIDS.--The quantity reported as dissolved solids (the residue on evaporation) consists mainly of the dissolved mineral constituents in the water. It may also contain some organic matter and water of crystallization. Waters with less than 500 parts per million of dissolved solids are usually satisfactory for domestic and most industrial uses. Water with more than 1,000 parts per million of dissolved solids are likely to be unsuitable for such uses.

HARDNESS.--Hardness is usually caused almost entirely by compounds of calcium and magnesium, although other constituents such as aluminum, iron, manganese and free acid also may cause hardness. In this report, hardness is expressed as the quantity of calcium carbonate ($CaCO_3$) that is chemically equivalent to the calcium, magnesium and other constituents causing hardness.

Water that has less than 50 parts per million of hardness is usually rated as soft and its treatment for removal of hardness is seldom justified. Hardness between 50 and 150 parts per million does not seriously interfere with the use of water for many purposes, but its removal by softening processes may be profitable for laundries and other industries. Water with hardness beyond 150 parts per million usually requires some treatment for removal of hardness before being used. Hardness due to sulfate and other soluble salts of calcium and magnesium, such as chloride or nitrates, is called noncarbonate hardness. In some instances it is more difficult and more expensive to remove noncarbonate hardness from water than to remove carbonate hardness.

TOTAL ACIDITY.--The total acidity of a natural water represents the content of free carbon dioxide, mineral acids and salts--especially sulfates of iron and aluminum--that hydrolyze to give hydrogen ions. Acid waters are very corrosive and generally contain excessive amounts of objectionable constituents, such as iron, aluminum and manganese.

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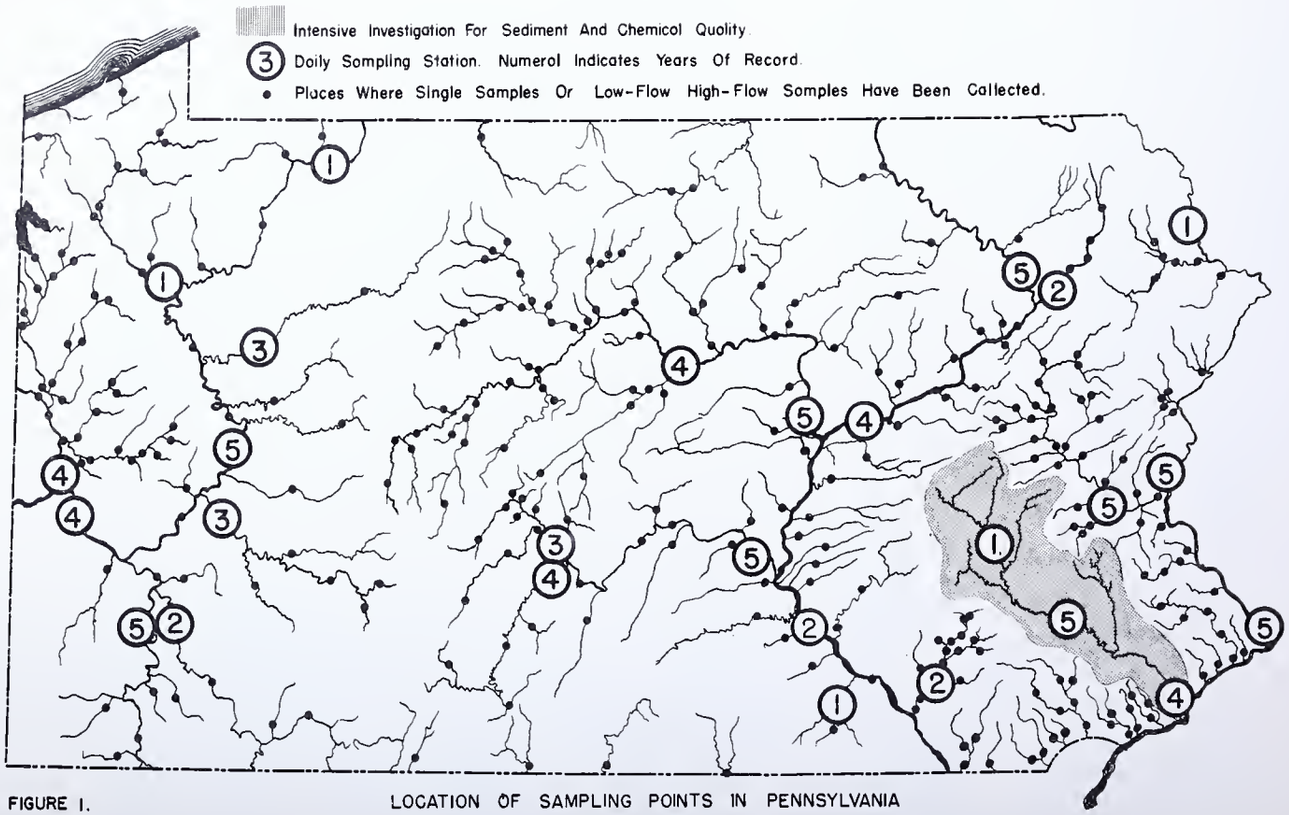
Intensive Investigation For Sediment And Chemical Quality.
3 Daily Sampling Station. Numeral Indicates Years Of Record.
Places Where Single Samples Or Low-Flow High-Flow Samples Have Been Collected.

FIGURE 1. LOCATION OF SAMPLING POINTS IN PENNSYLVANIA
1944 – 1949

THE CURRENT PROGRAM FOR DETERMINING THE CHEMICAL CHARACTER OF SURFACE WATERS

The plans that were developed for investigation of the chemical character of surface waters in Pennsylvania were based upon the fact that a considerable amount and variety of analytical data had already been obtained by public and private agencies which needed the data for their own special projects. It was recognized that because the complete chemical analysis of a water sample is time-consuming and costly, most of the agencies would have a tendency to make tests only for those constituents that had specific application to their particular problems, and the methods for making and reporting the results of tests would vary considerably between agencies. It was decided that the contribution which best could be made by this State-Federal investigation would be one which supplied one or two complete chemical analyses for many places in Pennsylvania and long-time records of chemical quality which would serve as a basic network of reference stations in each of the State's large river basins and would provide a basis for systematically correlating the wide variety of data obtained by other public and private agencies.

Approximately two-thirds of the funds available each year for this investigation are spent for daily sampling station records. These records provide information about day-to-day changes in concentration of dissolved solids in river water at selected spots. The comprehensive chemical analyses of composites of these daily samples give information about significant chemical characteristics of the river water. In the five-year period 1944-1949, a total of 91 years of daily sampling station records have been obtained at 28 sampling places, an average of about 3 1/3 years per sampling station.

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At about 200 places in the State, samples for chemical analysis have been collected, once during a period of low flow and again during a period of high flow. These analyses, plus the stream flow at the time of collection, provide a means for estimating the concentration and chemical character of water that may be expected at different river stages.

Cross-section samples provide information about variations in chemical character of river waters from bank to bank during a single period of sampling. Cross-section samples are obtained periodically at each daily sampling station. In addition, at one place 6 to 12 samples in a cross-section have been obtained three times a month since 1944 and 5 samples in a cross-section have been obtained regularly one to three times a month at four other places for periods of one to four years each.

The principal sampling now being done in order to supplement and extend the effective coverage of the daily sampling stations consists of collecting and analyzing samples and measuring the discharge from each of the significant tributaries in selected river basins. The samples are usually collected during a short period of time when the run-off is at a fairly uniform rate. The information obtained gives an indication of the character of water in the different tributaries that contribute to the total flow of the stream. If these studies are made during periods of relatively low flow, the results indicate the probable upper limits of concentration of constituents that will regularly be encountered.

Locations at which samples have been collected since the Pennsylvania investigations began in 1944 are shown in Figure 1. The large circles show the locations of daily sampling stations. The number of years that daily samples have been collected are shown by the numerals in the circles. The small black dots show places where single samples or low-flow high-flow samples have been collected. In most instances one or two complete chemical analyses are available for each place shown on the map.

The highest concentration of dissolved solids found in any single sample collected from surface water for the investigation is 3,410 ppm in a sample from Connoquenessing Creek at Butler and the lowest concentration is 14 ppm in a sample from Wild Creek at Hatchery. For daily sampling

station records, the highest 10-day composite dissolved solids concentration is 1,170 ppm for Kiskiminetas River at Leechburg and the lowest concentration is 35 ppm for Delaware River at Narrowsburg, N.Y. For most of the water sources in the State, the values for dissolved solids range between 40 ppm and 400 ppm. Exceptions will be found in streams carrying appreciable quantities of acid mine drainage or other industrial wastes.

In Figure 2 there is shown the range of values and the mean for the period of record for the specific electrical conductance of samples collected daily at 22 stations for the number of years indicated. The specific electrical conductance of a water is a measure of the dissolved solids in the water, and varies with the concentration and degree of ionization of the different chemicals in solution. Its determination is simple and rapid, and it affords a convenient method for showing changes in concentration of dissolved minerals in surface waters. The data given in Figure 2 indicates the range of conductivity that may reasonably be expected in river water samples collected at the stations listed. Extreme drought or flood conditions may extend the range, and future changes in stream conditions may significantly alter the present limits. The percent of time in which the conductance of daily samples at four daily sampling stations equalled or exceeded any certain conductance value is given in Figure 3 for five years of record at three stations and four years of record at one station.

The daily sampling records show that at many of the stations the chemical character of the water remains fairly uniform even though the conductivity or concentration of dissolved solids may change several hundred percent. This is illustrated in Table I which shows for several daily sampling stations the percentage composition of the principal cations and anions in solution at time of analysis for composite periods of maximum and minimum dissolved solids and the average for the period of time indicated. The variations in percentages shown here is typical of most of the stations for which daily sampling records are available. The data given in Table I are for analyses of 10-day composites. Day to day variations in chemical composition are greater than those shown. In general it seems to be characteristic of most of the daily sampling stations in Pennsylvania that calcium and magnesium represent from 75 to 90 percent of the total

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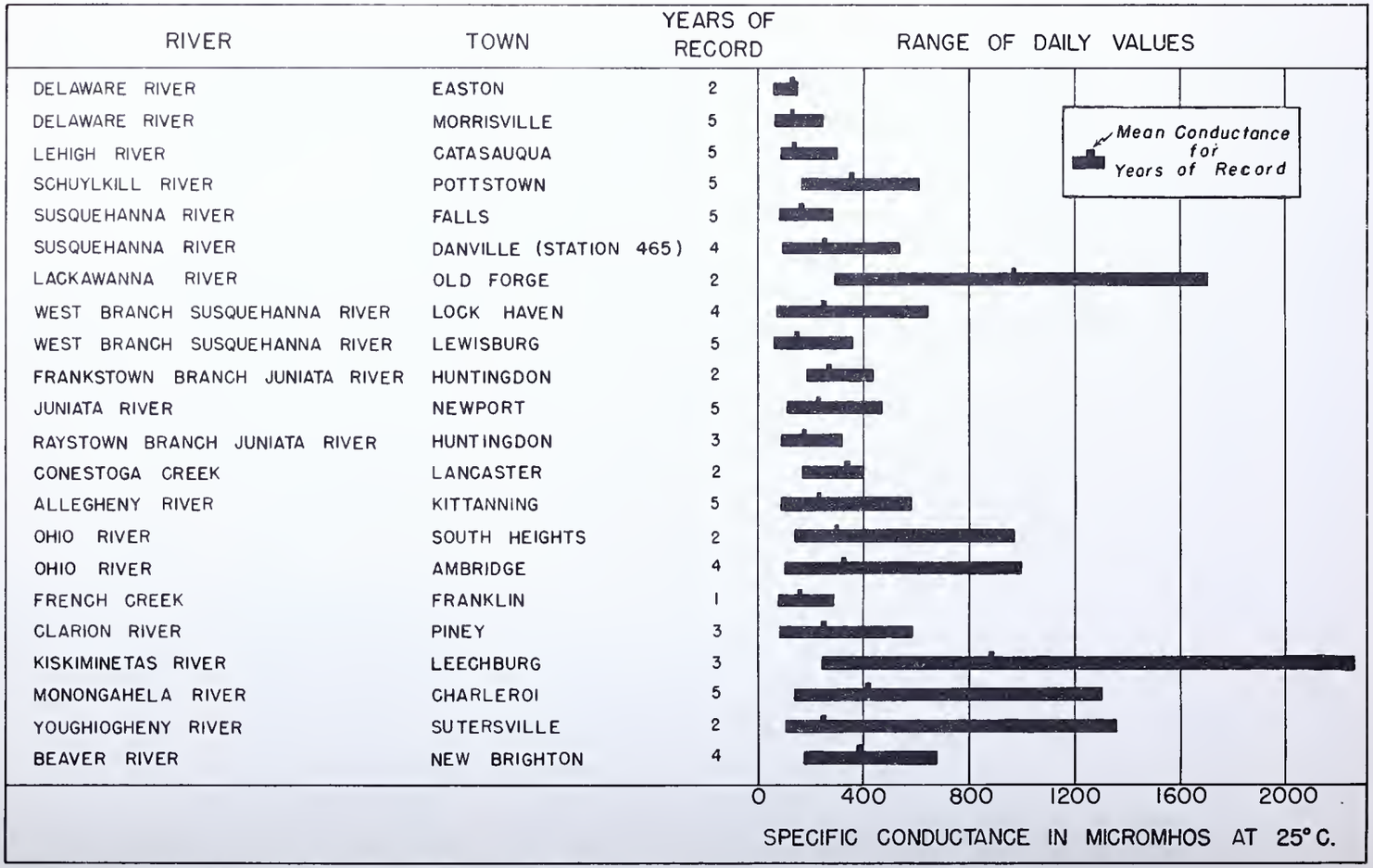

FIGURE 2 Range of conductivity at daily sampling stations in Pennsylvania, 1944-1949

Table 1 Composition of Dissolved Solids in Streams in Pennsylvania

Sampling Stations	Specific Conductance in Micromhos at 25°C.	Cations %Ca	%Mg	%Na, K	Anions %HCO_3	%SO_4	%Cl, F, NO_3
Delaware River at Trenton, N.J.							
For period of maximum conductivity	205	55	30	15	53	32	15
Average for three years, 1944-47	127	56	29	15	48	38	14
For period of minimum conductivity	72.1	55	28	17	45	43	12
Schuylkill River at Pottstown							
For period of maximum conductivity	564	57	26	17	16	78	6
Average for five years, 1944-49	346	60	24	16	23	69	8
For period of minimum conductivity	185	62	22	16	24	67	9
Susquehanna River at Falls							
For period of maximum conductivity	240	65	21	14	68	20	12
Average for three years, 1944-47	154	65	20	15	65	24	11
For period of minimum conductivity	89.0	62	20	18	57	33	10
W. Br. Susquehanna River at Lewisburg							
For period of maximum conductivity	318	57	26	17	4	86	10
Average for three years, 1944-47	139	56	29	15	13	77	10
For period of minimum conductivity	75.2	58	27	15	15	75	10
Allegheny River at Kittanning							
For period of maximum conductivity	521	42	14	44	20	31	49
Average for three years, 1944-47	224	49	19	32	28	39	33
For period of minimum conductivity	105	54	23	23	20	54	26
Beaver River at New Brighton							
For period of maximum conductivity	570	56	18	26	13	63	24
Average for two years, 1945-47	356	59	21	20	20	60	20
For period of minimum conductivity	210	59	24	17	25	59	16

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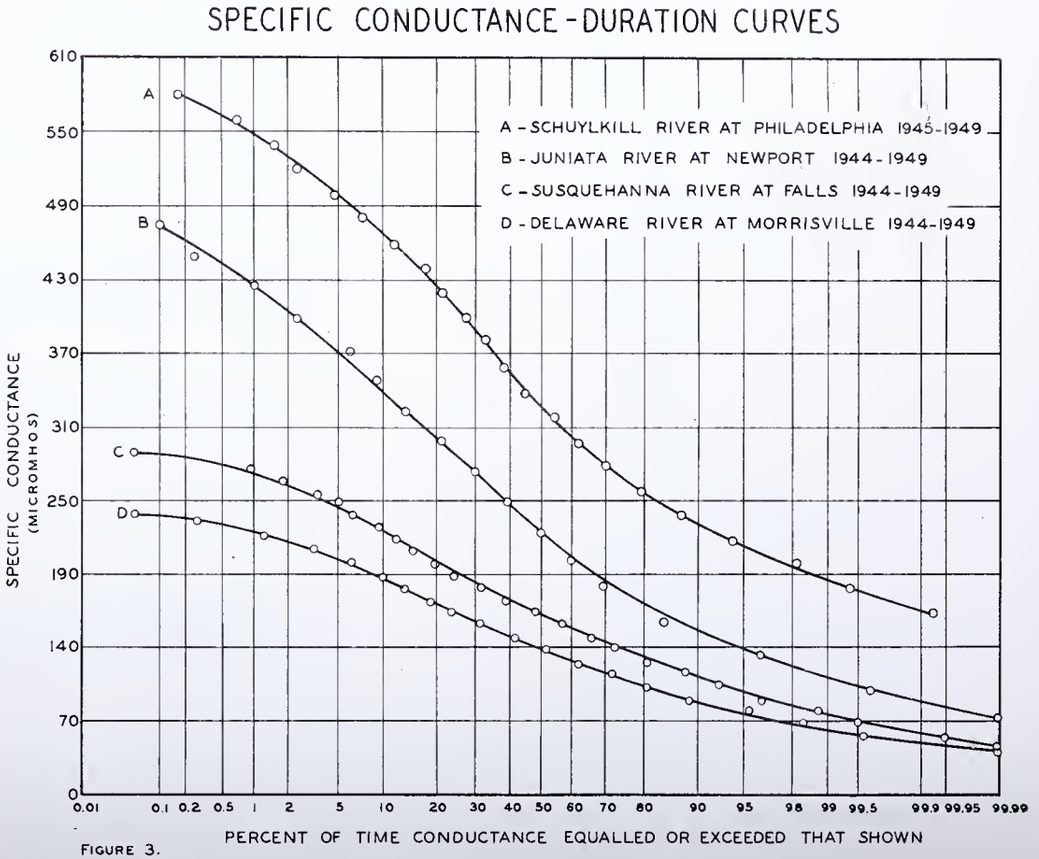
SPECIFIC CONDUCTANCE - DURATION CURVES
A - SCHUYLKILL RIVER AT PHILADELPHIA 1945-1949
B - JUNIATA RIVER AT NEWPORT 1944-1949
C - SUSQUEHANNA RIVER AT FALLS 1944-1949
D - DELAWARE RIVER AT MORRISVILLE 1944-1949
SPECIFIC CONDUCTANCE (MICROMHOS)
610
550
490
430
370
310
250
190
140
70
0
0.01
0.1
0.2
0.5
1
2
5
10
20
30
40
50
60
70
80
90
95
98
99
99.5
99.9
99.95
99.99
PERCENT OF TIME CONDUCTANCE EQUALLED OR EXCEEDED THAT SHOWN

FIGURE 3.

cations, and bicarbonate and sulfate represent 80 to 95 percent of the total anions. In some streams such as Allegheny River at Warren and Kittanning the proportions of calcium, magnesium, bicarbonate and sulfate are lower because of the inflow of waters high in concentrations of sodium and chloride. For streams unaffected by acid mine drainage, the principal anion is usually bicarbonate. When the proportion of sulfate equals or exceeds the bicarbonate it is usually an indication that acid mine drainage is entering the river system somewhere above the sampling point.

Waters having the least dissolved material are found in north-eastern and north-central sections of Pennsylvania, with some waters in the north-eastern section having noticeable color. Somewhat higher concentrations of calcium, magnesium, bicarbonate and nitrate are found in waters in south-eastern and south-central sections of Pennsylvania, with principal exceptions being observed in the increased proportions of sulfate and lower pH for streams affected by acid mine drainage. In the north-western section a variety of waters are found similar to those in the central sections. In the south-western section of the State, acid mine drainage, heavy-industry activity and lack of large inflow of good quality ground water combine to give the poor quality of water frequently found there. In this section can be found wide variations in quality in the streams and highest concentrations of practically all the dissolved constituents tested for in Pennsylvania waters.

In making the foregoing general statements about the chemical quality of surface waters in Pennsylvania it has been necessary to ignore the fact that there are many factors which frequently tend to produce results contrary to those just given. At low flow a relatively small inflow of concentrated waters may significantly alter the quality of water usually found at a sampling station. Heavy localized rains in a tributary basin may bring to the main stream a relatively large volume of water considerably different in quality from that normally contributed by the tributary. Large diversions of water upstream could materially affect the quality of the river water downstream from the diversion. In spite of the fact that streams are used for the disposal of many industrial wastes, it appears that the dominant factor determining the quality of water in most of the streams in Pennsylvania is the manner in which precipitation

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is carried off the land to the sea. Direct runoff of the streams nearly always tends to decrease the concentration of dissolved constituents and increase the quantity of suspended sediment in the river water. Operating counter to this tendency is the effect of ground-water inflow which is the indirect runoff of precipitation that soaks in the ground, dissolves minerals it contacts, and later flows into the streams at a more uniform rate than direct runoff. The ground water inflow, therefore, tends to add more dissolved constituents to the water and to provide clear water free of suspended sediment. Excluding the effects of waste material reaching a stream, the natural tendency with reference to quality of water of a stream is for the quality at low flow to approach the quality of contributing ground waters, with principal variations in quality occurring as a result of precipitation and unequal contribution of water from the various tributaries above.

In addition to the above factors which must be considered in establishing the chemical quality of a stream, one must be careful to select locations that can be sampled with assurance that the sample will be representative of the river flow. Too often, misleading data may be obtained because a sampling point does not properly represent the entire cross-section of a stream. The variations that may be encountered in this respect are shown by the cross-section data for Susquehanna River at Harrisburg given in Figure 4 and on pages 41 and 50 and on charts 5, 6 and 7 on pages XXIX to XXXII.

ANALYTICAL DATA

Analytical data made available as a result of the cooperative investigation of the quality of surface waters in Pennsylvania from October 1946 through September 1949 are given on pages 1 to 148. In each of the river basins, Delaware, Susquehanna, Ohio and Potomac, the data are presented in two sections, the first containing the analyses representing the daily or weekly sampling stations, and the second containing the analyses representing other sampling stations. The analyses for each section are listed in accordance with the location of the sampling station; the locations on the main stem being given first, in downstream order, followed by the locations on tributaries also listed in downstream order with reference to the main stem. Places for which analyses are available in Publication 17 of the State Planning Board "Industrial Utility of Water in Pennsylvania--Chemical Character of Surface Waters, 1944-46" and the applicable page numbers in the publication are listed in the index on pages 149 to 169. Publication 17 and this publication contain all of the published data for the investigation of quality of surface waters in Pennsylvania through September 1949. Unpublished data available in the files of the district office of the Quality of Water Branch of the Geological Survey include daily determinations of temperature and specific conductance. Daily determinations of pH are also available for the first year of record for the daily sampling stations and for those stations on streams that usually have acid water throughout the year. Data on suspended sediment discharges in the Schuylkill River basin are given in the report "Water Resources Investigations Relating to the Schuylkill River Restoration Project" published by the Department of Forests and Waters.

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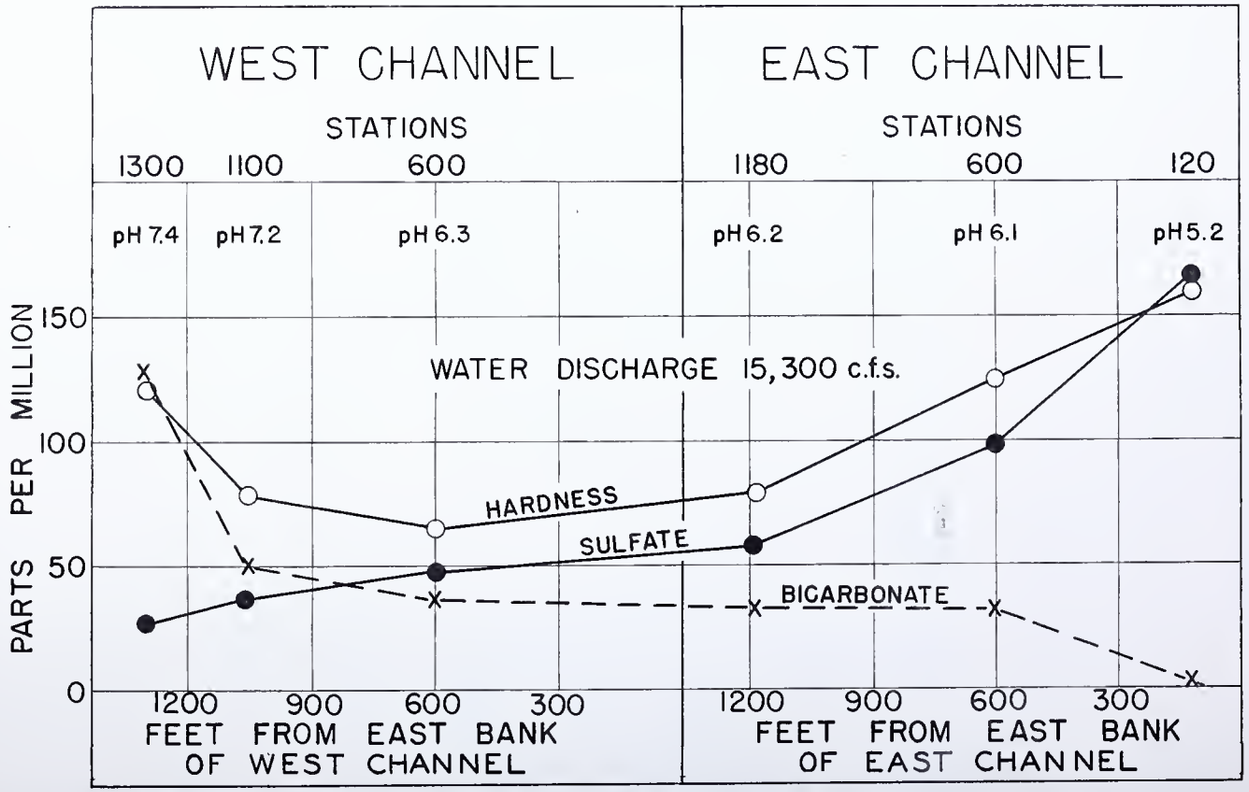

FIGURE 4 . Hardness, Bicarbanate, Sulfate, And pH In Crass-Section Of Susquehanna River At Harrisburg, July 8, 1947.

COLLECTION AND EXAMINATION OF WATER SAMPLES

For the collection of daily samples for which analyses are given in this publication, it was generally found convenient to employ someone living near a station who would be available for collecting the sample each day. At some of the stations it was possible to make use of services provided by municipal or industrial plants withdrawing water from the river at the point for which data were required. The samples were taken in 12-oz. bottles equipped with pressure stoppers. Field studies were made at the sampling stations for the purpose of selecting a point in the river cross-section that could be considered representative of most of the total flow of the river passing the station.

Single samples were collected by employees of the Geological Survey or the Department of Forests and Waters who made special trips to collect the samples. The samples were obtained either by wading the stream or by sampling from a bridge. The method of collection generally provided a single composite sample made up of small portions of water from approximately equally spaced intervals across the stream. The containers were one-gallon pyrex bottles.

Composites of samples collected once each day at the daily sampling stations were made up of equal quantities of each of the daily samples so that at least three composites were available each month, one for the 1-10 period, one for the 11-20 period, and one for the remainder of the month. Specific conductance determinations were made on each daily sample and if day-to-day changes differed considerably, shorter composite periods were selected so that waters of greatly different chemical composition would not be placed in the same composite.

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The samples were analyzed in accordance with methods regularly used by the Geological Survey. These methods are essentially the same as those described in approved publications on the chemical analysis of water samples. Hydrogen-ion concentration (pH) was determined electrometrically after the samples were received in Washington and opened for analysis. Specific conductance was determined by use of a Wheatstone bridge arrangement and a pipette cell for medium conductance.

The quantities of suspended sediment and material precipitated before the analysis was begun were determined for the daily sampling stations. Unless otherwise indicated, the values reported for iron and manganese represent quantities in solution at time of analysis. The quantity reported for dissolved solids is the residue on evaporation after heating at 180°C for one hour. For samples with pH 5.0 or less, aluminum, manganese and total acidity are reported in addition to the regular determinations. The total acidity is reported as equivalent H_2SO_4, and is obtained by titration to the phenolphthalein end point at boiling temperature. Total hardness is reported as the calculated $CaCO_3$ equivalent to all of the significant cations except sodium and potassium.

In the analysis of water samples it is necessary to determine very small amounts of various substances. For this reason the results are usually expressed as parts per million rather than in percent. One part per million equals one ten-thousandth of one percent (.0001%), or, a part per million is a unit weight of a constituent in a million unit weights of water.

A change in the method of reporting values for specific conductance was adopted by the Geological Survey during the period for which data are reported in this publication. Beginning October 1, 1947, the results of determinations of specific conductance are reported as micromhos at 25°C. Prior to this date the results are reported as $K \times 10^5$. To convert from $K \times 10^5$ to micromhos multiply by 10.

LIST OF RECORDS IN THIS REPORT

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DELAWARE RIVER BASIN

Regular Sampling Station Analyses

		Pages
Delaware River near Atco	1948-49	1
Delaware River near Richmond	1946-47	2
Delaware River at Easton	1947-49	3-4
Delaware River at Morrisville	1946-49	5-7
Lehigh River at Catasauqua	1946-49	8-10
Schuylkill River at Landingville	1947-49	11-12
Schuylkill River at Auburn	1947-49	13-14
Schuylkill River at Berne	1947-49	15-16
Schuylkill River at Pottstown	1946-49	17-19
Schuylkill River at Belmont Filter Plant, Philadelphia	1946-49	20-22
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Miscellaneous Analyses	1946-49	101-129

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SUSQUEHANNA RIVER BASIN

Regular Sampling Station Analyses

Susquehanna River at Falls	1946-49	25-27
Susquehanna River at Danville (includes cross-sections)	1946-49	28-40
Susquehanna River at Harrisburg (cross-sections only)	1946-49	41-50
Lackawanna River at Old Forge	1947-49	51-52
West Branch Susquehanna River at Lock Haven	1946-49	53-55
West Branch Susquehanna River at Lewisburg	1946-49	55-58
Frankstown Branch Juniata River at Huntingdon	1947-49	59-60
Juniata River at Newport	1946-49	61-63
Raystown Branch Juniata River near Huntingdon	1946-49	64-66
Codorus Creek near York	1948-49	67
Conestoga Creek at Lancaster	1947-49	68-69
Miscellaneous Analyses	1946-49	130-140

OHIO RIVER BASIN

Regular Sampling Station Analyses

Allegheny River at Warren	1948-49	70
Allegheny River at Kittanning	1946-49	71-73
Allegheny River at Sharpsburg (cross-sections only)	1947-49	74-75
Ohio River at South Heights	1946-47	76
Ohio River at Sewickley (cross-sections only)	1946-47	77-78
Ohio River at Ambridge (includes cross-sections)	1946-49	78-84
French Creek at Franklin	1946-47	85
Clarion River near Piney	1946-49	86-88
Kiskiminetas River at Leechburg	1946-49	89-91
Monongahela River at Charleroi	1946-49	92-94
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Beaver River at New Brighton	1946-49	97-99
Miscellaneous Analyses	1946-49	141-142

POTOMAC RIVER BASIN

Regular Sampling Station Analyses

Conocheague Creek at Fairview, Md	1948-49	143-144
Antietam Creek near Waynesboro, Pa	1948-49	145-146
Monocacy River at Bridgeport, Md	1948-49	147-148

CHARTS ILLUSTRATING THE CHEMICAL CHARACTER OF SUSQUEHANNA RIVER AT HARRISBURG

Figure 5 is a location map of the Susquehanna River above Harrisburg showing the daily sampling stations at Danville, Lewisburg and Newport, the distances up stream from the cross-section sampling station, and the source of part of the acid mine water which flows into the Susquehanna. For comparison, the chemical quality of water at the daily sampling stations and at Harrisburg are shown in Figure 6. The persistence with which the Susquehanna River maintains its characteristic cross-section variation in conductance is indicated in Figure 7.

It is important to note that in spite of the long river distance involved, the islands, bridges, piers and rough stream bed, all of which tend to mix the river flow, the waters from the principal tributaries above Harrisburg do not mix sufficiently to lose their identity before reaching Harrisburg.

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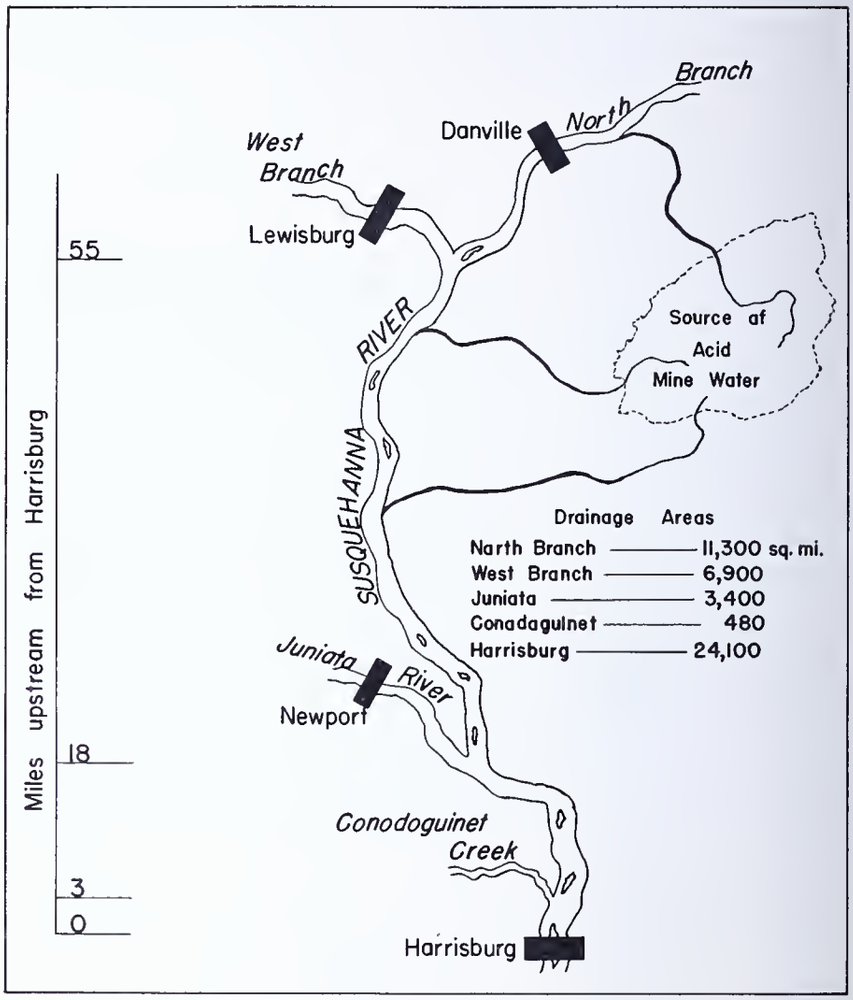

FIGURE 5. Lacation Map Of Susquehanna River Basin Abave Harrisburg, Pa.

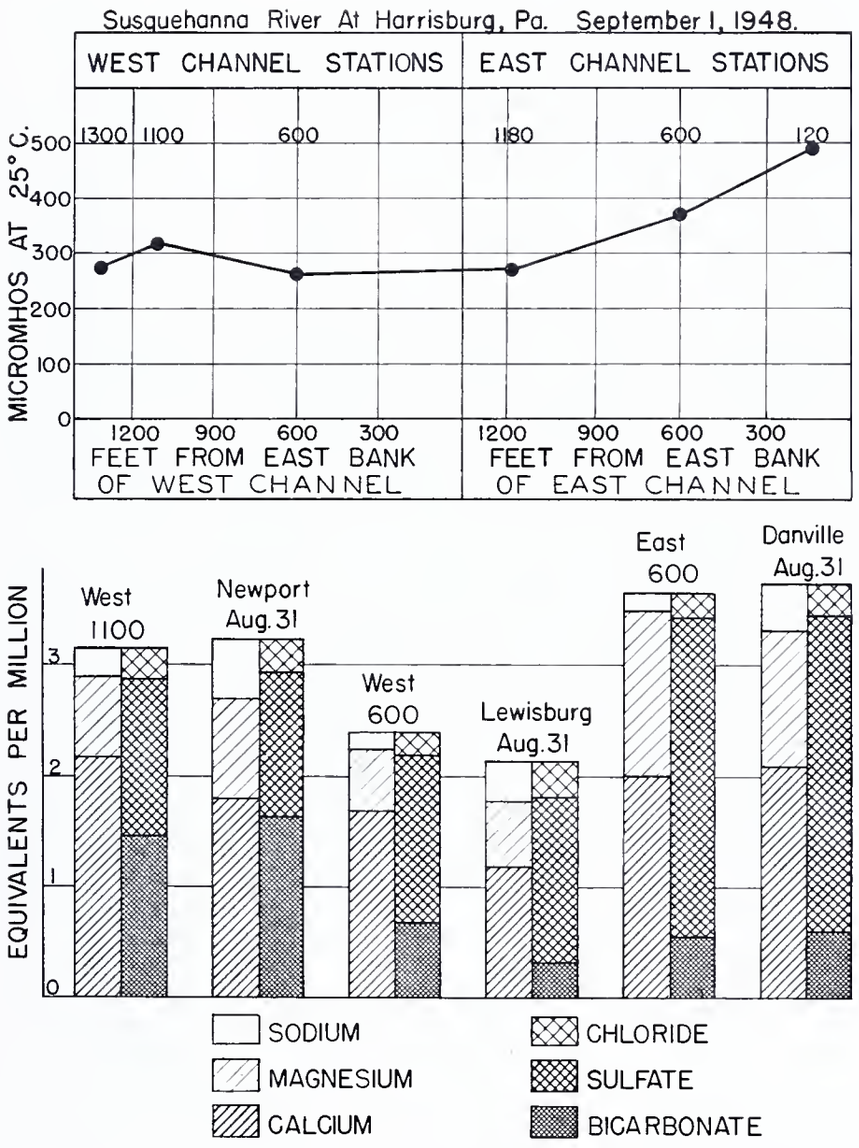

FIGURE 6 . Conductivity And Chemical Character Of Susquehanna River At Harrisburg And Upstream Tributaries.

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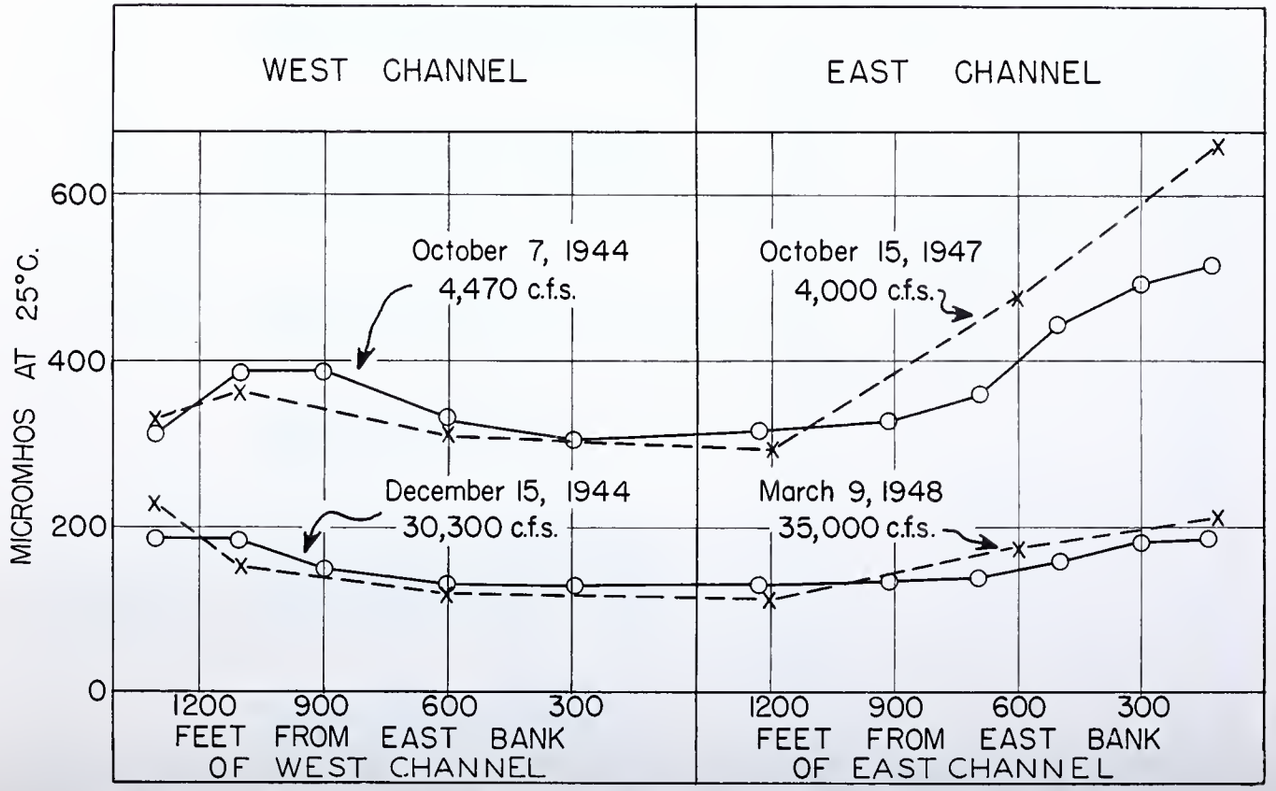

FIGURE 7 . Specific Conductance Of Susquehanna River At Harrisburg, Pa. 1944 – 1948.

SOURCES OF INFORMATION ABOUT STREAM FLOW STATIONS IN PENNSYLVANIA

Information about the location of stream-flow measuring stations in Pennsylvania, the drainage areas, records available, average discharges,and extremes of discharge are available through the Division of Hydrography, Pennsylvania Department of Forests and Waters.

A gaging station, or stream-flow measurement station, is a selected section in a stream channel equipped with a gage and facilities for measuring the flow of water, where data are gathered by which continuous discharge records may be developed. Basic data systematically collected at such stream-flow measurement stations consist of records of state, measurements of discharge and other general information needed to supplement the gage height and discharge measurements in determining the instantaneous and daily mean flow. Records of stage are obtained either by direct readings on a nonrecording gage, such as a staff or wire-weight gage, or from a water-stage recorder.

Discharge measurement is accomplished by measuring the depth and mean velocity of the water at a number of selected points (usually 20 or more) in a section across a stream channel, and computing discharge from these factors. The technical procedure followed and the time consumed in making a discharge measurement depends upon local conditions, the method used in determining the mean velocity, and the manner in which the sounding is made. Discharge measurements are made from bridge, cableway, boat, or by wading. Special equipment developed by the Geological Survey is employed for each type of measurement. Due to the unstable banks and channels frequent discharge measurements must be made to assure accurate records. The frequency depends upon local

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conditions and may vary from once each month to once or more each day during extreme high water.

The equipment and methods perfected by the Geological Survey for stream-flow measurements are described in Stream-Gaging-Procedure--A Manual Describing Methods and Practice of the Geological Survey, published in 1943 as Water-Supply Paper 888.

As a few technical terms commonly used in describing water resources and related investigations may be unfamiliar, brief descriptions follow:

SECOND-FEET is an abbreviation for cubic feet per second. A second-foot is the rate of discharge equivalent to that of a stream whose channel is one square foot in cross-sectional area and whose average velocity is one foot per second.

SECOND-FEET PER SQUARE MILE is the average number of cubic feet of water flowing per second from each square mile of area drained, on the assumption that the runoff is distributed uniformly both as regards to time and area.

RUNOFF is the portion of precipitation that appears as flow in a stream, usually expressed in inches of water depth.

RUNOFF IN INCHES is the depth to which an area would be covered if all the water draining from it in a given period were uniformly distributed on its surface.

ACRE-FOOT is a measure of volume--the quantity of water that would cover one acre to a depth of one foot. An acre-foot contains 43,560 cubic feet.

DATUM is a plane of reference for elevation.

DISCHARGE is the rate of flow of water, or other fluid, in a channel past a given point per unit of time, usually expressed in second-feet, gallons per minute, or gallons per day. One second-foot flowing for 24 hours = 86,400 cubic feet = 646,317 gallons = nearly 2 acre-feet (actually 1.983471).

DRAINAGE AREA is the area drained by a stream or stream system upstream from some designated point, usually expressed in square miles.

GAGE: (1) A staff or wire-weight graduated to indicate the elevation of a water surface above the datum; (2) a device for producing a graphic record of the rise and fall of a water surface with respect to time; usually called a water-level or water-stage recorder.

GAGE-HEIGHT is the elevation of a water surface above or below a datum corresponding to the zero of the staff or other type of gage by which the height is indicated.

WATER YEAR is the year beginning October 1 and ending the following September 30 used by the U. S. Geological Survey in its report. This period is used rather than the calendar year to facilitate many studies of runoff because it coincides more nearly with the climatological year that affects runoff.

SOURCES OF INFORMATION ABOUT WATER SUPPLIES AND THEIR TREATMENT

The list of books which follows is not intended as a complete bibliography on the subject. It is merely a check list of certain books which have been found useful and valuable with reference to the subject. Books may be obtained from the publisher or through local book stores. The prices given are current at the time the list was compiled but are subject to subsequent change.

These or similar publications are available for consultation in many public and university libraries. These libraries may also have such publications as the Journal of the American Water Works Association, the Journal of the New England Water Works Association, and other journals which contain articles relating to water supplies and water treatment.

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A. S. T. M. Standards on Industrial Water; - - - ; (1950); $1.75; American Society for Testing Materials, 1916 Race Street, Philadelphia, Pennsylvania.

Glossary--Water and Sewage Control Engineering; - - - ; (1946); $2.00; American Water Works Association, 500 Fifth Avenue, New York 18, New York.

Ground Water; Its Development, Uses and Conservation; E. W. Bennison; (1947); $2.25; Edward E. Johnson, Inc., 2304 Long Avenue, St. Paul 4, Minnesota.

Hydrology Handbook; - - - ; (1949); $4.00; American Society of Civil Engineers, 33 West 39th Street, New York 18, New York.

Industrial Utility of Public Water Supplies in the United States, 1932; W. D. COLLINS, W. L. LAMAR, E. W. LOHR; (1934); $.35; U. S. Geological Survey Water-Supply Paper 658; Superintendent of Documents, Government Printing Office, Washington 25, D. C.

Laboratory Control of Water Purification; CHARLES R. COX; (1946); $4.00; Case-Sheppard-Mann Publishing Corporation, 24 West 40th Street, New York 18, New York.

Quest for Pure Water, The; M. N. BAKER; (1948); $5.00; American Water Works Association, 500 Fifth Avenue, New York 18, New York.

Safe Water for the Farm; H. L. GARVER; (1946); $.15; U. S. Department of Agriculture Farmers' Bulletin No. 1978; Superintendent of Documents, Government Printing Office, Washington 25, D. C.

Standard Methods for the Examination of Water and Sewage; - - - ; (9th Edition, 1946); $4.00; American Public Health Association, 1790 Broadway, New York 19, New York.

Stream Flow; NATHAN C. GROVER and ARTHUR W. HARRINGTON; (1943); $4.50; John Wiley and Sons, 440 Fourth Avenue, New York, New York.

Water Quality and Treatment; - - - ; (2nd Edition); $5.00; American Water Works Association; 500 Fifth Avenue, New York 18, New York.

Water Supply and Treatment; CHARLES P. HOOVER; $.75; National Lime Association, 927 Fifteenth Street, N. W. Washington 5, D. C.

Water Supply and Water Purification; - - - ; (1942); $.55; War Department Technical Manual 5-295; Superintendent of Documents, Government Printing Office, Washington 25, D. C.

Chemical analyses, in parts per million, water year October 1948 to September 1949

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$	
																				Total	Non carbonate
Oct. 1-10, 1948	255	61	5	7.0	81.1	3.5	—	.01	.00	7.0	2.4	4.3	1.6	26	11	3.0	.0	.8	43	27	6
Oct. 11-20	408	55	5	7.0	77.4	1.7	—	.01	.00	7.7	2.2	4.1	1.3	24	11	5.8	.0	.7	41	28	9
Oct. 21-31	447	50	5	7.2	75.9	1.9	—	.02	.00	7.7	2.2	3.1	1.2	24	12	4.8	.0	.6	41	28	9
Nov. 1-10	1,416	54	5	7.2	73.8	3.2	—	.01	.00	7.3	2.1	3.4	1.2	20	12	5.0	.0	1.0	41	27	10
Nov. 11-20	1,426	46	5	7.0	68.5	3.6	—	.01	.00	7.0	1.9	3.1	1.0	18	12	4.5	.0	1.8	39	25	10
Nov. 21-30	3,383	—	15	6.6	58.0	3.3	—	.02	—	5.2	1.4	1.7	1.2	11	11	.8	.1	1.6	36	19	10
Dec. 1-10	2,344	41	20	6.6	58.7	3.0	—	.01	—	5.8	1.5	1.6	1.2	14	11	1.1	.1	1.6	38	21	9
Dec. 11-18	2,251	39	10	6.6	56.0	2.0	—	.02	—	5.8	1.5	1.6	1.6	14	10	1.1	.1	1.8	35	21	9
Dec. 19-29	1,603	--	River frozen; no samples collected																		
Dec. 30, 31	39,500	33	25	6.2	49.4	1.8	—	.02	—	6.4	2.0	1.3	—	8	12	.8	.1	2.0	44	24	18
Jan. 1-10, 1949	17,710	37	20	6.4	46.4	1.8	—	.02	—	5.1	1.2	1.0	1.4	8	11	.5	.1	1.7	33	18	11
Jan. 11-15	6,132	37	25	6.6	49.8	4.0	—	.02	—	5.9	1.3	1.4	1.0	12	12	.5	.0	1.8	35	20	10
Jan. 16-24	3,983	--	River frozen; no samples collected																		
Jan. 25	4,531	--	15	6.5	44.0	3.0	—	.01	—	5.6	1.2	1.4	.8	9	11	.8	.1	1.5	31	19	12
Jan. 26-Feb. 4	3,621	--	River frozen; no samples collected																		
Feb. 5	3,027	30	10	6.7	59.2	3.4	—	.03	.00	5.8	1.6	2.5	1.2	11	12	1.8	.0	1.5	36	21	12
Feb. 6-14	2,131	--	River frozen; no samples collected																		
Feb. 15	8,035	30	10	6.5	60.9	2.7	—	.01	.00	6.0	1.8	2.4	1.3	10	12	2.5	.0	2.2	36	22	14
Feb. 16-24	10,390	--	River frozen; no samples collected																		
Feb. 25-27	7,057	39	10	6.7	49.3	2.6	—	.01	—	5.8	1.6	1.2		12	10	1.8	—	1.2	30	21	11
Feb. 28	5,515	39	5	6.6	161	9.7	—	—	—	—	—	—		42	20	5	—	7.6	—	—	—
Mar. 1-10	4,939	38	8	6.9	49.4	2.6	—	.02	.00	5.5	1.2	2.2	.9	12	10	1.6	.0	.9	30	19	9
Mar. 11-20	3,354	33	5	6.9	49.1	1.6	—	.02	.00	5.4	1.3	2.3	.9	12	9.8	1.8	.0	.6	30	19	9
Mar. 21-31	4,333	45	10	6.6	49.7	3.5	—	.01	—	5.6	1.3	1.2	1.0	11	10	1.6	.1	1.4	29	19	10
Apr. 1, 3-10	3,529	46	10	6.7	50.9	4.1	—	.01	—	6.0	1.3	1.3	1.0	12	10	1.2	.1	1.0	32	20	10
Apr. 2	3,406	45	10	6.7	158	5.4	—	—	—	14	4.4	7.2		42	20	6.0	--	6.4	98	53	19
Apr. 11-20	4,160	51	10	6.7	50.5	3.5	—	.01	—	5.6	1.3	1.5	.9	12	11	1.2	.1	1.0	31	19	9
Apr. 21-30	6,075	54	10	6.7	50.6	4.0	—	.01	—	6.7	1.2	1.0	.8	12	11	1.0	.1	1.6	30	22	12
May 1-10	4,746	61	10	6.6	52.1	3.6	—	.01	—	5.6	1.2	1.6	1.2	11	13	1.0	—	1.5	34	19	10
May 11-16, 18-20	2,683	64	10	6.7	54.9	4.4	—	.01	—	6.2	1.4	1.6	1.5	14	10	2.0	.1	.9	33	21	10
May 17	1,949	65	15	6.7	157	5.7	—	—	—	16	4.4	4.3		40	21	6.0	--	3.6	98	58	25
May 21-31	5,742	59	10	6.7	49.3	4.2	—	.01	—	5.6	1.8	1.3	.8	11	12	1.0	.1	1.0	32	21	12
June 1-3, 7	2,373	67	10	6.9	161	4.7	—	.01	—	14	5.2	4.0		42	21	6.2	--	6.2	99	56	22
June 4-6, 8-10	1,545	70	10	6.9	59.0	3.9	—	.01	—	6.7	1.7	1.6		17	10	1.5	--	1.0	33	24	10
June 11-15, 19, 20	857	78	15	6.8	72.0	3.5	—	.02	—	7.0	1.6	3.8	2.2	22	10	3	.0	2.7	42	24	6
June 16-18, 22	703	78	5	7.0	162	11	—	.02	.00	17	3.9	8.0	2.9	45	22	6	.0	6.8	99	58	22
June 21, 23-30	599	79	10	7.0	70.6	3.8	—	.02	.00	6.8	1.8	3.0	2.1	22	10	3	.0	1.5	41	24	6
July 1-10	442	78	10	6.9	74.6	3.0	—	.03	.00	7.1	1.8	3.2	2.2	25	10	3.5	.0	1.0	43	25	5
July 11-16, 19, 20	371	78	10	6.6	72.2	2.4	—	.02	.00	7.3	2.1	3.7	1.7	22	10	3.2	.0	1.0	40	27	9
July 17-18	394	76	100	7.5	2020	33	—	.25	—	23	15	395		540	99	505	.0	2.4	1050	119	0
July 21-24, 28-31	438	79	10	7.0	66.7	3.5	—	.07	.00	7.2	2.2	2.0	2.7	20	9.4	3.0	.0	.6	38	27	11
July 25-27, Aug. 7	333	80	10	7.1	157	12	—	.02	.00	17	5.0	5.1	3.3	40	29	6.5	.0	6.2	97	83	30
Aug. 1-6, 8-10	331	81	10	6.8	79.6	3.5	—	.07	.00	8.0	2.1	2.1	2.8	24	9.2	3.8	.0	1.4	45	29	9
Aug. 11-20	316	80	10	6.8	74.1	3.8	—	.02	.00	7.6	2.2	1.7	3.0	24	11	3.0	.0	.7	43	28	B
Aug. 21-31	483	76	10	6.8	73.0	2.2	—	.04	.00	7.6	2.2	3.0	1.4	24	11	2.8	.0	.8	43	28	8
Sept. 1-3, 7-10	567	67	5	6.6	74.4	2.4	—	.02	.00	7.2	2.4	3.5	1.6	22	12	3.1	.1	.5	43	28	9
Sept. 4-6	450	75	4	6.6	196	11	—	.06	.00	18	5.6	16	5.8	72	26	11	.1	3.4	118	68	9
Sept. 11-20	291	63	5	6.9	77.3	3.2	—	.04	.00	7.0	2.5	2.3	1.4	23	10	3.1	.1	.9	42	28	9
Sept. 21-30	542	51	5	6.9	69.6	4.0	—	.01	.00	7.3	2.4	2.1	.8	22	10	2.9	.0	.6	38	28	10
Average	3,057																				

PY.P712, 1/9
I.no. 241
APRIL 1952
OMMERCE
APHS

Delaware River near Richmond, Pa.

Chemical analysee, in parts per million, water year October 1946 to September 1947

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Kx10^5 at 25°C.) 1/	Silica (SiO_2)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$	
																			Total	Noncarbonate
Oct. 1-10, 1946	3,549	60	12	7.3	7.15	2.5	0.05	—	8.0	2.0		2.6	22	12	2.1	—	0.3	50	28	10
Oct. 11-20	3,527	59	7	7.0	6.94	—	—	—	—	—		—	22	—	—	—	—	—	—	—
Oct. 21-31	3,769	57	8	7.1	7.00	—	—	—	—	—		—	23	—	—	—	—	—	—	—
Nov. 1-10	3,265	55	6	7.0	7.13	—	—	—	—	—		—	23	—	—	—	—	—	—	—
Nov. 11-20	3,041	47	6	7.1	7.44	—	—	—	—	—		—	26	—	—	—	—	—	—	—
Nov. 21-30	2,688	41	4	7.2	6.98	—	—	—	—	—		—	22	—	—	—	—	—	—	—
Dec. 1-10	2,592	37	5	7.1	7.37	—	—	—	—	—		—	22	—	—	—	—	—	—	—
Dec. 11-20	2,750	36	5	6.9	7.45	—	—	—	—	—		—	22	—	—	—	—	—	—	—
Dec. 21-31	3,415	34	5	7.0	7.23	3.1	.02	—	8.0	2.1		3.5	22	13	2.2	—	1.9	45	29	11
Jan. 1-10, 1947	4,466	34	4	6.7	7.43	—	—	—	—	—		—	15	—	—	—	—	—	—	—
Jan. 11-20	5,795	34	4	6.7	6.48	—	—	—	—	—		—	20	—	—	—	—	—	—	—
Jan. 21-31	14,600	35	7	6.5	6.03	—	—	—	—	—		—	13	—	—	—	—	—	—	—
Feb. 1-10	13,710	34	5	6.7	6.02	—	—	—	—	—		—	16	—	—	—	—	—	—	—
Feb. 11-20	6,093	34	4	6.7	6.70	—	—	—	—	—		—	18	—	—	—	—	—	—	—
Feb. 21-28	4,334	33	4	6.8	7.17	—	—	—	—	—		—	20	—	—	—	—	—	—	—
Mar. 1-10	4,253	35	5	6.8	7.25	—	—	—	—	—		—	22	—	—	—	—	—	—	—
Mar. 11-20	19,000	38	7	6.7	6.65	3.7	.01	—	7.2	1.9		2.2	17	12	2.0	—	1.6	43	26	12
Mar. 21-31	16,940	39	7	6.5	6.05	--	—	—	—	—		—	20	—	—	—	—	—	—	—
Apr. 1-10	32,240	46	7	6.4	5.47	—	--	—	—	—		—	15	—	—	—	—	—	—	—
Apr. 11-20	14,340	53	7	6.6	6.03	--	—	—	—	—		—	18	—	—	—	—	—	—	—
Apr. 21-30	11,450	50	5	6.6	6.30	—	—	—	—	--		—	18	—	—	—	—	—	—	—
May 1-10	23,300	53	7	6.4	6.17	--	—	—	—	—		—	17	--	—	—	—	—	—	—
May 11-20	13,190	57	5	6.4	6.38	--	--	—	—	—		—	19	—	—	—	—	—	—	—
May 21-31	23,080	66	7	6.0	6.08	—	—	—	—	—		—	16	—	—	—	—	—	—	—
June 1-10	10,540	66	7	6.1	6.77	—	--	—	—	—		—	22	—	—	—	—	—	—	—
June 11-20	9,135	68	7	6.3	7.06	—	—	—	—	—		—	23	—	—	—	—	—	—	—
June 21-30	5,896	71	7	6.3	7.38	—	—	—	—	—		—	26	—	—	—	—	—	—	—
July 1-10	9,425	74	7	6.7	7.75	—	--	—	—	—		—	27	—	—	—	—	—	—	—
July 11-20	12,920	73	15	6.4	6.07	3.1	.01	—	6.4	1.8		3.5	20	11	1.5	—	1.2	42	23	7
July 21-31	15,010	72	15	6.5	5.80	—	—	--	—	—		—	18	—	—	—	—	—	—	—
Aug. 1-10	5,660	74	7	6.7	6.75	—	--	—	—	—		—	22	--	--	--	—	—	—	—
Aug. 11-20	7,737	76	15	7.1	6.63	—	--	—	—	—		—	19	—	—	—	—	—	—	—
Aug. 21-31	4,567	73	13	7.5	7.04	--	—	—	—	—		—	22	—	—	—	—	—	—	—
Sept. 1-10	3,834	75	5	7.0	7.40	—	—	—	—	—		—	24	11	—	--	—	—	—	—
Sept. 11-20	2,847	76	4	7.1	7.40	—	—	—	—	—		—	25	11	—	—	—	—	—	—
Sept. 21-30	2,396	61	6	7.1	7.52	—	—	—	—	—		—	25	11	—	—	—	—	—	—
Average	9,116	54	7	6.8	6.79	—	—	—	—	—		—	21	—	—	—	—	—	—	—

DELAWARE RIVER AT EASTON, PA.

Chemical analyses, in parts per million, water year October 1947 to September 1948

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$	
																			Total	Noncarbonate
Oct. 1-10, 1947	1,960	--	4	7.9	110	1.6	0.04	--	12	3.4	4.7		42	15	2.2	0.1	1.0	62	44	10
Oct. 11-20	1,804	--	5	7.8	104	--	--	--	--	--	--		38	14	--	--	--	--	--	--
Oct. 21-30	1,947	--	5	7.8	111	--	--	--	--	--	--		42	15	--	--	--	--	--	--
Nov. 1-10	7,886	--	10	7.2	97.3	--	--	--	--	--	--		30	15	--	--	--	--	--	--
Nov. 11-20	14,139	--	11	6.8	72.1	--	--	--	--	--	--		19	13	--	--	--	--	--	--
Nov. 21-30	6,975	--	7	7.1	84.3	--	--	--	--	--	--		23	14	--	--	--	--	--	--
Dec. 1-10	5,401	--	5	7.3	89.7	--	--	--	--	--	--		26	15	--	--	--	--	--	--
Dec. 11-20	6,184	--	5	7.2	84.4	--	--	--	--	--	--		25	14	--	--	--	--	--	--
Dec. 21-31	4,572	--	5	7.3	90.7	--	--	--	--	--	--		27	14	--	--	--	--	--	--
Jan. 1-10, 1948	4,452	--	4	6.8	92.3	4.0	.02	--	10	2.9	4.0		30	15	2.4	.0	2.5	64	37	12
Jan. 11-20	3,688	--	5	7.6	94.6	--	--	--	--	--	--		31	15	--	--	--	--	--	--
Jan. 21-31	3,281	--	6	7.5	99.7	--	--	--	--	--	--		33	15	--	--	--	--	--	--
Feb. 1-10	2,921	--	5	7.2	100	--	--	--	--	--	--		32	15	--	--	1.9	--	--	--
Feb. 11-20	6,165	--	4	7.0	101	--	--	--	--	--	--		32	18	--	--	2.2	--	--	--
Feb. 21-29	12,300	--	3	6.9	88.0	--	--	--	--	--	--		22	17	--	--	3.7	--	--	--
Mar. 1-10	7,330	--	3	7.3	105	--	--	--	--	--	--		37	17	--	--	3.6	--	--	--
Mar. 11-20	22,539	--	4	7.4	91.9	--	--	--	--	--	--		28	15	--	--	3.4	--	--	--
Mar. 21-31	46,573	--	4	7.1	59.2	--	--	--	--	--	--		9	11	--	--	3.1	--	--	--
Apr. 1-10	15,450	--	4	6.9	79.2	3.2	.01	--	8.6	2.3	5.2		28	14	1.9	.0	2.6	54	31	8
Apr. 11-20	25,019	--	6	6.8	69.3	--	--	--	--	--	--		18	8.9	--	--	1.6	--	--	--
Apr. 21-30	12,408	--	7	7.2	77.8	--	--	--	--	--	--		24	13	--	--	1.5	--	--	--
May 1-10	8,925	--	3	7.1	85.9	--	--	--	--	--	--		26	13	--	--	1.3	--	--	--
May 11-20	16,311	--	7	7.1	78.5	--	--	--	--	--	--		26	13	--	--	1.5	--	--	--
May 21-31	14,818	--	4	6.5	73.9	--	--	--	--	--	--		22	12	--	--	1.1	--	--	--
June 1-10	7,942	--	3	6.6	87.7	--	--	--	--	--	--		30	13	--	--	1.0	--	--	--
June 11-20	6,324	--	4	6.9	90.2	--	--	--	--	--	--		30	12	--	--	1.3	--	--	--
June 21-30	9,382	--	5	6.9	84.2	--	--	--	--	--	--		29	11	--	--	1.4	--	--	--
July 1-10	6,090	--	5	7.1	92.9	--	--	--	--	--	--		33	12	--	--	1.4	--	--	--
July 11-20	4,268	--	3	6.9	98.3	--	--	--	--	--	--		37	15	--	--	.6	--	--	--
July 21-31	3,460	--	4	6.9	104	--	--	--	--	--	--		39	13	--	--	.7	--	--	--
Aug. 1-10	3,356	--	5	6.5	99.7	--	--	--	--	--	--		36	14	--	--	.7	--	--	--
Aug. 11-20	2,929	--	4	6.8	101	--	--	--	--	--	--		35	15	--	--	.5	--	--	--
Aug. 21-31	2,489	--	5	6.9	109	--	--	--	--	--	--		40	15	--	--	.6	--	--	--
Sept. 1-10	1,758	--	8	7.2	119	--	--	--	--	--	--		40	17	--	--	1.8	--	--	--
Sept. 11-20	1,694	--	7	7.4	114	--	--	--	--	--	--		42	16	--	--	1.1	--	--	--
Sept. 21-30	1,654	--	4	7.4	113	--	--	--	--	--	--		42	18	2.6	.2	.7	69	49	15
Average	8,455	--	5	--	93.1	--	--	--	--	--	--		31	14	--	--	--	--	--	--

APRIL 1952
COMMERCE
GRAPHS

DELAWARE RIVER AT EASTON, PA.

Chemical analyses, in parts per million, water year October 1948 to September 1949

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Ne)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$	
																				Total	Non carbonate
Oct. 1-10, 1948	1,858	—	3	7.2	113	2.0	—	.07	--	13	3.7	3.9		41	17	2.8	.1	.7	69	48	14
Oct. 11-20	1,599	--	10	7.5	109	--	--	--	--	--	--	--		41	15	--	--	1.0	--	--	--
Oct. 21-31	1,764	--	8	7.5	104	--	--	--	--	--	--	--		40	14	--	--	.6	--	--	--
Nov. 1-10	2,825	—	10	7.5	107	--	--	--	--	--	--	--		40	15	--	--	1.0	--	--	--
Nov. 11-20	3,214	--	10	7.4	101	--	--	--	--	--	--	--		32	16	--	--	1.9	--	--	--
Nov. 21-30	6,094	--	10	7.3	86.7	--	--	--	--	--	--	--		26	15	--	--	2.0	--	--	--
Dec. 1-10	4,463	--	8	7.6	86.9	—	--	--	--	--	--	--		28	15	--	--	1.3	--	--	--
Dec. 11-20	4,353	--	5	6.9	94.5	4.4	--	--	--	--	--	--		24	14	6.8	--	1.1	--	--	--
Dec. 21-31	13,020	—	5	7.1	108	4.5	--	--	--	--	--	--		34	17	5.2	--	2.0	--	--	--
Jan. 1-10, 1949	39,900	—	11	7.3	66.1	4.6	--	.04	--	6.9	1.9	1.7		11	14	2.5	.0	2.1	45	25	16
Jan. 11-20	12,450	--	8	6.8	81.8	5.3	--	--	--	--	--	--		25	13	2.5	--	2.2	--	--	--
Jan. 21-31	11,280	--	5	6.8	85.7	4.3	--	--	--	--	--	--		23	17	2.9	--	2.3	--	--	--
Feb. 1-10	8,351	—	5	6.8	94.7	5.0	--	--	--	--	--	--		28	16	2.6	--	2.1	--	--	--
Feb. 11-20	14,760	--	8	6.7	83.0	5.3	--	--	--	--	--	--		26	14	2.2	--	2.3	--	--	--
Feb. 21-28	15,250	--	8	6.9	71.4	4.7	--	--	--	--	--	--		20	13	2.2	--	1.5	--	--	--
Mar. 1-10	10,950	--	5	7.0	76.3	4.2	--	--	--	--	--	--		24	14	2.2	--	1.3	--	--	--
Mar. 11-20	8,520	--	5	6.8	76.7	2.8	--	--	--	--	--	--		23	12	2.4	--	1.1	--	--	--
Mar. 21-31	7,922	--	5	6.9	78.4	2.3	--	--	--	--	--	--		25	13	2.2	--	1.0	--	--	--
Apr. 1-10	7,416	--	8	6.9	80.7	2.1	--	.11	--	9.2	2.5	2.7		26	13	2.0	.1	1.5	54	33	12
Apr. 11-20	10,030	--	7	7.4	73.7	3.7	--	--	--	--	--	--		23	12	--	--	1.4	--	--	--
Apr. 21-30	14,070	--	8	7.6	65.5	4.4	--	--	--	--	--	--		21	12	--	--	.7	--	--	--
May 1-10	11,870	--	9	7.0	75.4	3.8	--	--	--	--	--	--		23	13	1.6	--	1.4	--	--	--
May 11-20	7,187	--	9	7.0	84.5	4.4	--	--	--	--	--	--		27	13	2.1	--	1.3	--	--	--
May 21-31	12,380	--	9	7.0	73.9	4.8	--	--	--	--	--	--		22	12	1.9	--	1.4	--	--	--
June 1-10	5,268	--	9	7.1	85.5	3.9	--	--	--	--	--	--		30	13	2.0	--	.9	--	--	--
June 11-20	2,941	--	6	7.0	102	4.4	--	--	--	--	--	--		37	14	2.5	--	1.1	--	--	--
June 21-30	2,276	--	6	7.0	109	4.8	--	--	--	--	--	--		38	15	2.6	--	1.4	--	--	--
July 1-10	1,694	--	6	6.8	121	3.0	--	.02	--	13	4.0	5.5		44	15	5.6	.2	.8	77	49	13
July 11-20	1,989	--	6	7.2	124	5.0	--	--	--	--	--	--		42	17	4.2	--	.7	--	--	--
July 21-31	1,895	--	7	7.3	128	6.2	--	--	--	--	--	--		46	17	4.2	--	.6	--	--	--
Aug. 1-10	1,515	--	6	7.0	126	3.2	--	--	--	--	--	--		45	16	4.0	--	.8	--	--	--
Aug. 11-20	1,324	--	6	6.9	126	3.3	--	--	--	--	--	--		44	15	4.2	--	1.0	--	--	--
Aug. 21-31	1,034	--	6	6.9	135	2.9	--	--	--	--	--	--		48	17	4.0	--	.9	--	--	--
Sept. 1-10	1,559	--	7	7.2	116	5.4	--	--	--	--	--	--		42	15	3.8	--	.8	--	--	--
Sept. 11-20	1,109	--	6	7.2	121	2.9	--	--	--	--	--	--		42	16	3.8	--	.8	--	--	--
Sept. 21-30	1,397	—	4	6.6	117	1.8	--	.02	--	13	3.5	6.6		46	14	6.2	.0	.4	74	47	9
Average	7,052	—	7	7.1	96.9	4.0	--	--	--	--	--	--		32	15	--	--	1.2	--	--	--

Delaware River at Morrisville, Pa.

Chemical analyses, in parts per million, water year October 1946 to September 1947

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Kx10^6 at 25°C.) 1/	Silica (SiO_2)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Non-carbonate
Oct. 1-10, 1946---	5,790	62	--	7.4	15.4	3.0	0.08	—	16	5.1	5.1		43	25	5.6	—	3.3	91	61	26
Oct. 11-20--------	5,550	60	4	7.3	15.6	3.0	.04	—	16	5.4	6.1		44	27	6.0	—	3.5	93	62	26
Oct. 21-31--------	6,057	58	6	7.3	14.4	3.0	.05	—	16	5.0	4.6		42	25	5.2	—	3.3	85	60	26
Nov. 1-10---------	5,188	59	7	7.3	14.5	2.4	.04	—	16	5.1	4.6		42	25	5.6	—	3.1	88	61	26
Nov. 11-20--------	4,664	50	5	7.2	14.6	2.0	.04	—	16	5.4	4.0		42	25	5.5	—	3.2	86	62	28
Nov. 21-30--------	4.132	47	4	7.2	16.0	1.8	.04	--	17	5.8	5.5		47	27	6.2	--	3.6	95	66	28
Dec. 1-10---------	3,981	40	6	7.2	15.6	1.6	.05	--	17	5.6	3.8		46	24	5.8	—	3.4	91	65	28
Dec. 11-20--------	4,053	44	3	7.1	16.6	3.0	.03	—	17	5.9	5.3		45	27	7.0	—	4.3	96	67	30
Dec. 21-31--------	5,534	37	5	7.3	15.4	4.6	.04	—	16	5.2	5.5		39	29	5.5	—	4.2	92	61	29
Jan. 1-10, 1947---	6,051	37	4	7.1	14.1	4.6	.03	--	15	5.8	2.9		37	25	5.5	—	4.2	84	61	31
Jan. 11-20--------	8,809	38	5	6.9	13.2	3.6	.04	—	14	4.2	4.3		33	26	2.6	—	4.8	81	52	25
Jan. 21-31--------	20,270	37	4	6.9	9.59	5.4	.02	—	11	3.3	3.9		24	20	4.0	--	4.3	66	41	21
Feb. 1-10---------	19,710	37	6	6.9	9.43	4.6	.03	--	13	3.3	1.7		22	19	3.2	—	3.0	64	41	23
Feb. 11-20--------	9,583	36	3	7.0	12.4	4.8	.03	—	13	3.9	5.2		32	23	4.5	—	4.0	81	48	22
Feb. 21-28--------	6,800	34	4	7.1	14.4	4.0	.05	—	16	4.4	4.8		38	25	5.5	—	4.2	94	58	27
Mar. 1-10---------	8,149	38	4	6.9	13.8	4.6	.04	—	14	5.1	4.8		35	26	5.2	—	4.0	86	56	27
Mar. 11-20--------	26,320	41	5	6.9	11.2	4.6	.05	—	12	4.1	3.5		28	22	3.8	—	4.0	72	47	24
Mar. 21-31--------	22,300	43	5	6.8	8.76	4.5	.02	—	9.2	2.8	2.7		20	17	2.8	—	2.8	55	34	18
Apr. 1-10---------	38,280	47	7	6.8	8.17	4.8	.03	—	8.6	2.6	2.9		18	17	2.6	—	2.9	52	32	17
Apr. 11-20--------	20,330	53	4	6.9	9.08	4.4	.03	—	9.8	2.9	3.2		23	18	2.8	--	2.3	57	36	18
Apr. 21-30--------	15,860	52	5	6.9	9.74	3.9	.03	—	11	3.1	2.9		26	18	3.4	--	2.0	60	40	19
May 1-10----------	33,450	56	6	7.2	9.04	4.6	.03	--	9.8	3.0	3.3		22	20	2.4	—	2.2	61	37	19
May 11-20---------	18,950	57	5	7.3	9.74	3.8	.08	—	10	3.3	4.8		27	20	3.0	--	2.1	63	38	16
May 21-31---------	35,220	65	8	6.8	9.06	4.6	.12	--	9.9	3.0	2.7		23	18	2.5	--	2.1	63	37	18
June 1-10---------	18,040	66	6	7.0	11.0	5.2	.12	—	12	3.8	3.2		30	20	3.5	--	2.8	75	46	21
June 11-20--------	15,290	70	8	6.7	12.3	5.0	.08	--	13	4.4	4.3		35	23	3.4	--	3.0	74	51	22
June 21-30--------	9,516	72	4	7.1	13.8	3.4	.09	--	15	5.4	3.6		42	24	4.2	--	2.8	89	60	25
July 1-10---------	14,120	79	5	7.0	14.3	4.0	.09	--	15	5.6	4.4		44	25	3.8	--	3.2	94	60	24
July 11-20--------	22,730	73	8	6.6	9.62	4.0	.02	--	10	3.2	2.3		24	17	2.8	--	2.3	57	38	18
July 21-31--------	21,680	74	13	6.7	8.99	3.6	.04	--	9.4	2.8	3.4		24	17	2.8	--	1.4	59	35	15
Aug. 1-10---------	9,097	74	5	6.7	12.5	3.0	.09	—	14	4.5	3.5		35	23	4.9	—	2.0	85	53	25
Aug. 11-20--------	10,840	78	8	6.6	11.9	3.0	.11	--	14	4.4	3.0		35	22	4.1	--	2.8	84	53	24
Aug. 21-31--------	7,430	77	6	6.7	13.3	4.2	—	--	14	4.8	4.5		37	23	5.6	--	2.8	93	55	24
Sept. 1-10--------	6,020	75	3	6.8	15.3	4.0	.04	—	16	5.4	5.2		43	27	5.1	--	3.6	112	62	27
Sept. 11-20--------	4,724	77	4	7.0	16.5	3.0	.06	--	17	6.0	5.6		48	27	6.5	--	3.3	116	67	28
Sept. 21-30--------	4,188	64	4	7.4	17.4	4.0	.03	--	19	6.4	3.9		52	26	6.9	—	3.4	103	74	31
Average	13,620	56	5	7.0	12.7	3.8	0.05	—	14	4.4	3.9		35	23	4.4	—	3.2	80	53	24

1/ To convert to micromhos at 25°, multiply by 10.

PYPP712, 1/9 Inc. 241
APRIL 1952
OMMERCE
APHS

DELAWARE RIVER AT MORRISVILLE, PA.

Chemical analyses, in parts per million, water year October 1947 to September 1948

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (micromhos at 25°C.)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Noncarbonate
Oct. 1-10, 1947	3,093	—	3	7.2	194	3.0	0.04	21	7.0	5.8		58	30	8.2	0.0	4.3	113	81	34
Oct. 11-20	3,020	—	7	7.8	200	—	—	—	—	—		59	33	—	—	—	—	—	—
Oct. 21-31	3,016	—	5	7.4	204	—	—	—	—	—		60	33	—	—	—	—	—	—
Nov. 1-10	11,148	—	5	7.6	161	—	—	—	—	—		40	28	—	—	—	—	—	—
Nov. 11-20	21,620	—	7	6.7	101	—	—	—	—	—		22	19	—	—	—	—	—	—
Nov. 21-30	11,221	—	4	7.0	125	—	—	—	—	—		31	22	—	—	—	—	—	—
Dec. 1-10	8,208	—	4	7.2	133	—	—	—	—	—		35	22	—	—	—	—	—	—
Dec. 11-20	9,209	—	4	7.2	132	—	—	—	—	—		32	23	—	—	—	—	—	—
Dec. 21-31	6,905	—	3	7.2	133	—	—	—	—	—		34	24	—	—	—	—	—	—
Jan. 1-10, 1948	7,902	—	3	6.9	142	6.0	.03	12	5.2	6.3		34	25	5	.0	5.0	84	51	23
Jan. 11-20	5,935	—	3	6.9	152	—	—	—	—	—		40	28	—	—	—	—	—	—
Jan. 21-31	5,055	—	4	6.8	165	—	—	—	—	—		44	26	—	—	—	—	—	—
Feb. 1-10	4,725	—	3	6.9	164	—	—	—	—	—		44	27	—	—	4.4	—	—	—
Feb. 11-20	11,020	—	5	6.8	146	—	—	—	—	—		32	27	—	—	5.8	—	—	—
Feb. 21-29	20,767	—	5	7.1	113	—	—	—	—	—		28	21	—	—	4.8	—	—	—
Mar. 1-10	14,160	—	4	7.1	133	—	—	—	—	—		32	24	—	—	5.1	—	—	—
Mar. 11-20	28,010	—	8	7.1	120	—	—	—	—	—		32	22	—	—	4.2	—	—	—
Mar. 21-31	55,273	—	5	6.7	72.6	—	—	—	—	—		16	14	—	—	3.6	—	—	—
Apr. 1-10	24,590	—	3	6.8	101	4.7	.02	10	3.3	4.7		28	18	3.5	.0	2.6	72	38	16
Apr. 11-20	34,170	—	5	7.1	90.9	—	—	—	—	—		23	17	—	—	3.0	—	—	—
Apr. 21-30	18,170	—	4	6.9	102	—	—	—	—	—		25	17	—	—	2.6	—	—	—
May 1-10	15,480	—	4	6.9	118	—	—	—	—	—		32	19	—	—	2.6	—	—	—
May 11-20	27,840	—	8	6.9	106	—	—	—	—	—		26	17	—	—	2.7	—	—	—
May 21-31	22,164	—	3	7.2	99.4	—	—	—	—	—		28	16	—	—	1.9	—	—	—
June 1-10	12,626	—	3	7.1	132	—	—	—	—	—		40	19	—	—	2.3	—	—	—
June 11-20	10,995	—	3	7.0	138	—	—	—	—	—		41	21	—	—	2.1	—	—	—
June 21-30	15,070	—	4	6.8	132	—	—	—	—	—		38	17	—	—	2.4	—	—	—
July 1-10	9,763	—	3	7.1	133	—	—	—	—	—		42	19	—	—	2.1	—	—	—
July 11-20	7,087	—	3	6.8	143	—	—	—	—	—		46	20	—	—	2.1	—	—	—
July 21-31	6,296	—	3	6.9	161	—	—	—	—	—		52	23	—	—	2.3	—	—	—
Aug. 1-10	5,898	—	3	7.0	172	—	—	—	—	—		50	25	—	—	2.8	—	—	—
Aug. 11-20	5,494	—	4	6.8	166	—	—	—	—	—		49	25	—	—	3.4	—	—	—
Aug. 21-31	5,579	—	4	7.1	172	—	—	—	—	—		49	27	—	—	3.5	—	—	—
Sept. 1-10	3,182	—	1	7.4	203	—	—	—	—	—		65	30	—	—	3.2	—	—	—
Sept. 11-20	3,306	—	1	7.4	206	—	—	—	—	—		70	30	7.4	—	2.9	—	—	—
Sept. 21-30	2,911	—	2	7.2	205	6.8	.03	20	6.9	9.0		61	31	8.5	.2	3.7	127	78	28
Average	12,820	—	4	—	144	—	—	—	—	—		40	23	—	—	—	—	—	—

Chemical analyses, in parts per million, water year October 1948 to September 1949

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Non carbonate
Oct. 1-10, 1948---	3,373	63	4	7.1	202	3.2	—	.03	—	20	6.9	9.1		59	31	10	.1	3.7	123	78	30
Oct. 11-20-------	2,896	58	6	7.6	203	--	—	--	—	--	--	—		58	30	10	—	3.4	—	—	--
Oct. 21-31-------	3,056	54	5	7.6	202	—	—	—	—	—	—	—		58	30	9.2	—	3.2	—	—	—
Nov. 1-10--------	4,201	57	6	7.5	206	—	—	—	—	--	--	—		58	31	10	—	3.7	--	—	—
Nov. 11-20-------	5,104	52	5	7.3	150	—	--	—	--	—	—	—		41	24	7.0	--	3.5	—	—	—
Nov. 21-30-------	9,300	49	6	7.4	133	—	--	—	--	—	—	—		33	24	5.2	--	3.4	--	--	—
Dec. 1-10--------	7,218	44	5	7.2	162	—	—	—	—	—	—	--		32	27	12	--	3.3	--	--	--
Dec. 11-20-------	7,157	40	3	6.0	147	4.3	—	--	--	--	--	--		32	25	--	--	2.6	--	--	--
Dec. 21-31-------	17,273	35	3	6.1	150	5.4	--	--	--	--	--	--		35	27	--	--	3.8	--	--	--
Jan. 1-10, 1949---	59,520	38	10	7.1	83.2	5.5	—	.01	—	8.1	2.7	4.4		18	19	2.6	.1	3.0	58	31	17
Jan. 11-20-------	19,110	40	7	6.9	110	6.1	—	--	--	--	--	--		27	20	--	--	3.4	--	--	--
Jan. 21-31-------	19,918	40	6	6.6	118	6.2	—	—	—	--	--	—		27	23	4.1	—	4.0	—	--	--
Feb. 1-10--------	14,630	36	5	6.6	129	6.1	--	--	--	—	—	--		32	23	4.8	--	3.8	--	--	--
Feb. 11-16, 20---	14,371	39	5	6.6	144	5.6	--	--	--	--	--	--		—	—	--	--	3.4	--	--	--
Feb. 17-19-------	33,600	40	7	6.6	95.5	5.1	—	--	—	--	--	--		--	—	2.0	—	3.0	--	--	--
Feb. 21-28-------	23,290	42	6	6.6	109	5.1	—	--	—	--	--	—		24	19	6.5	--	2.9	--	--	—
Mar. 1-10--------	16,130	40	5	7.0	121	4.1	—	--	—	—	--	--		27	19	--	--	2.2	--	--	--
Mar. 11-20-------	12,710	40	4	7.1	122	3.6	—	--	—	—	--	—		32	20	--	--	1.9	--	--	--
Mar. 21-31-------	12,010	51	4	7.4	122	4.8	—	--	—	--	—	--		34	20	--	--	3.0	--	--	—
Apr. 1-10--------	11,730	52	8	6.7	132	3.1	--	.16	—	13	4.2	7.5		37	22	7.4	.1	2.5	86	50	19
Apr. 11-20-------	14,820	54	5	7.3	111	3.2	—	—	--	--	--	—		31	18	--	—	2.8	--	--	—
Apr. 21-30-------	21,590	55	8	6.6	89.8	4.5	—	--	—	--	--	--		24	16	--	—	1.3	--	--	—
May 1-10---------	18,230	64	10	6.7	99.0	4.4	—	--	—	--	--	--		26	17	—	--	1.2	--	--	--
May 11-20--------	11,600	66	6	7.1	113	4.4	--	--	--	--	--	—		33	18	3.8	—	2.2	--	--	--
May 21-31-------	18,060	62	6	7.0	97.7	4.4	—	—	—	--	--	--		28	16	3.2	--	2.5	--	--	—
June 1-10--------	8,338	69	5	6.9	122	3.9	—	--	--	--	--	—		34	18	4.2	—	2.1	--	--	--
June 11-20-------	4,812	76	4	6.9	154	4.2	—	--	--	--	--	--		46	23	5.6	—	3.0	--	--	--
June 21-30-------	3,895	80	6	6.9	170	5.5	--	--	--	--	--	--		51	25	6.5	--	3.1	--	--	--
July 1-10--------	3,123	80	8	7.1	182	5.3	--	.02	--	19	7.0	5.8		62	25	5.9	.1	4.1	112	76	25
July 11-20-------	4,344	78	6	7.7	182	3.0	—	--	--	--	--	--		57	27	6.5	—	4.1	--	--	--
July 21-31-------	3,697	84	6	7.9	195	4.6	--	--	—	--	--	--		67	27	5.4	--	3.0	--	--	--
Aug. 1-10--------	3,157	81	5	7.7	187	2.3	--	—	--	--	--	--		58	27	7.0	--	2.8	--	—	--
Aug. 11-20-------	2,707	77	6	7.8	207	3.1	—	—	--	--	--	--		64	30	7.8	--	3.3	--	--	--
Aug. 21-31-------	2,280	76	5	7.8	218	2.9	--	—	--	--	--	--		66	33	8.2	--	3.6	--	--	--
Sept. 1-10-------	3,262	72	5	7.7	183	2.1	--	—	—	--	--	--		50	30	7.0	--	3.4	--	--	--
Sept. 11-20------	2,453	70	7	7.8	222	2.9	--	--	--	--	--	—		69	34	8.6	--	3.6	--	--	—
Sept. 21-30------	2,441	65	4	7.2	214	5.8	--	.04	—	21	7.3	8.1		66	30	8.2	.1	3.5	129	82	28
Average------	10,970	58	6	—	151	--	--	--	--	—	--	--		43	24	--	—	3.1	—	—	—

P-P-712, 1/6
Enc. 24 I
APRIL 1952
OMMERCE
APHS

Lehigh River at Catasauqua, Pa.

Chemical analyses, in parts per million, October 1946 to September 1947.

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Kx10⁶ at 25°C.) [1]	Silica (SiO_2)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Non-carbonate
Oct. 1-10, 1946	1,058	56		7.2	16.5	5.2	0.04	—	16	5.0	7.2		21	50	3.0	—	3.3	103	60	43
Oct. 11-20	1,120	55	5	6.8	15.1	3.6	.07	—	14	4.9	5.7		14	47	3.2	—	3.3	94	55	44
Oct. 21-31	1,256	54	4	6.7	12.8	3.8	.06	—	12	4.5	4.2		12	41	2.5	—	2.0	80	48	39
Nov. 1-10	1,034	54	4	6.8	14.0	4.6	.04	—	13	4.9	4.7		11	46	3.0	—	2.1	86	53	44
Nov. 11-20	837	45	4	6.9	15.0	4.2	.06	—	13	5.1	6.3		15	47	3.0	—	2.1	91	53	41
Nov. 21-30	735	40	3	6.8	16.5	4.2	.03	—	16	5.5	6.0		14	56	2.8	—	2.2	105	62	51
Dec. 1-10	632	36	3	6.8	17.9	4.4	.02	—	17	5.9	6.8		14	60	3.5	—	3.2	112	67	55
Dec. 11-20	621	37	3	7.0	18.4	3.6	.03	—	17	5.9	8.7		17	62	3.5	—	2.6	115	67	53
Dec. 21-31	1,003	33	2	7.1	14.6	4.4	.03	—	14	4.7	6.4		14	48	3.2	—	2.8	92	54	43
Jan. 1-10, 1947	869	32	3	6.7	13.8	5.4	.03	—	13	4.9	4.3		12	43	2.8	—	4.1	87	53	43
Jan. 11-20	1,479	34	3	6.7	12.6	4.6	.04	—	12	3.9	6.1		12	41	2.8	—	3.4	80	46	36
Jan. 21-31	3,207	36	3	6.4	9.84	5.5	.06	—	10	3.1	3.1		9	30	2.4	—	3.1	63	38	30
Feb. 1-10	2,827	34	4	6.7	9.97	5.5	.05	—	9.7	3.1	4.0		10	30	2.6	—	3.3	62	37	29
Feb. 11-20	1,394	32	2	6.7	11.6	4.2	.03	—	11	3.9	5.0		12	37	2.4	—	3.3	75	44	34
Feb. 21-28	1,014	32	2	6.7	13.9	4.2	.04	—	13	4.5	6.0		15	44	2.5	—	2.8	88	51	39
Mar. 1-10	1,101	33	2	6.7	13.9	4.8	.04	—	13	4.6	5.4		14	44	2.6	—	2.7	86	51	40
Mar. 11-20	4,210	36	4	6.5	10.1	5.3	.05	—	10	3.0	4.0		10	31	2.2	—	2.9	68	37	29
Mar. 21-31	2,845	38	4	6.5	8.33	4.6	.04	—	7.8	2.6	3.3		7	26	2.1	—	2.0	54	30	24
Apr. 1-10	3,947	44	8	6.4	7.78	4.7	.14	—	7.3	2.4	3.2		7	24	2.0	—	1.8	52	28	22
Apr. 11-20	2,605	49	3	6.5	8.77	4.2	.05	—	8.2	2.9	3.7		9	28	2.0	—	1.5	58	32	25
Apr. 21-30	2,466	47	4	6.4	8.60	3.8	.07	—	7.8	2.9	3.6		8	27	2.1	—	1.9	57	31	25
May 1-10	5,122	51	7	6.4	8.28	3.9	.08	—	8.2	2.7	2.8		9	25	1.8	—	2.2	56	32	24
May 11-20	2,739	54	3	6.4	9.20	3.6	.04	—	8.4	3.1	3.7		9	29	1.9	—	1.9	61	34	26
May 21-31	6,805	60	8	6.5	8.78	4.0	.12	—	9.2	2.7	2.4		10	26	1.8	—	1.9	60	34	26
June 1-10	3,194	60	5	6.4	10.5	5.3	—	—	9.8	3.6	3.5		9	33	2.4	—	2.1	74	39	32
June 11-20	2,519	65	4	6.7	11.3	5.6	—	—	11	3.7	3.7		13	33	2.5	—	2.8	76	43	32
June 21-30	1,447	66	3	6.2	13.8	5.2	—	—	13	4.8	4.4		14	42	3.0	—	3.0	87	52	41
July 1-10	3,530	70	4	6.5	13.4	4.2	.05	—	12	4.6	5.7		13	43	2.5	—	2.7	94	49	38
July 11-20	5,458	66	7	5.6	8.92	4.4	.11	—	7.8	3.1	3.6		4	32	1.5	—	1.6	64	32	29
July 21-31	3,440	66	4	6.1	9.10	4.2	.04	—	8.1	3.2	4.1		6	32	2.0	—	1.5	64	33	28
Aug. 1-10	1,553	69	3	6.5	12.4	4.7	.04	—	11	4.4	5.5		10	42	2.8	—	2.0	86	46	37
Aug. 11-20	1,474	72	5	6.2	11.7	4.6	—	—	11	4.3	3.7		10	39	2.0	—	2.0	83	45	37
Aug. 21-31	1,107	71	3	6.3	13.5	4.8	.09	—	13	4.8	4.8		12	45	2.8	—	2.8	99	52	42
Sept. 1-10	964	70	2	6.6	14.5	4.2	.05	—	14	5.1	4.8		14	47	3.0	—	2.2	107	56	44
Sept. 11-20	767	71	3	6.7	17.7	5.2	.03	—	17	6.2	6.4		17	58	3.2	0.0	3.6	114	68	54
Sept. 21-30	719	57	2	6.8	17.8	4.8	.03	—	17	6.1	5.8		17	56	3.4	.1	3.6	111	68	54
Average	2,161	51	4	6.6	12.5	4.5	0.05	—	12	4.2	4.6		12	40	2.6	—	2.6	82	47	37

[1] Determined in laboratory.

LEHIGH RIVER AT CATASAUQUA, PA.

Chemical analyses, in parts per million, water year October 1947 to September 1948

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (micromhos at 25°C.)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Noncarbonate
Oct. 1-10, 1947	543	56	2	6.9	214	4.6	0.02	21	7.5	8.0		22	70	3.5	0.1	5.6	136	83	65
Oct. 11-20	494	59	6	7.2	243	--	--	--	--	--		20	83	--	--	--	--	--	--
Oct. 21-31	595	58	5	7.0	238	--	--	--	--	--		21	79	--	--	--	--	--	--
Nov. 1-10	1,985	49	3	7.2	146	--	--	--	--	--		12	46	--	--	--	--	--	--
Nov. 11-20	3,018	42	6	6.6	106	--	--	--	--	--		8	31	--	--	--	--	--	--
Nov. 21-30	1,886	38	4	6.5	116	--	--	--	--	--		9	35	--	--	--	--	--	--
Dec. 1-10	1,323	36	3	6.7	137	--	--	--	--	--		14	40	--	--	--	--	--	--
Dec. 11-20	1,253	33	2	6.7	136	--	--	--	--	--		16	40	--	--	--	--	--	--
Dec. 21-31	1,049	32	2	6.6	139	--	--	--	--	--		14	41	--	--	--	--	--	--
Jan. 1-10, 1948	1,287	32	3	6.8	126	5.4	.03	12	3.7	6.4		14	37	4	.1	4.1	79	45	34
Jan. 11-20	816	31	2	6.8	144	--	--	--	--	--		14	44	--	--	--	--	--	--
Jan. 21-31	646	31	3	6.5	159	--	--	--	--	--		16	47	--	--	--	--	--	--
Feb. 1-10	632	31	2	6.6	171	--	--	--	--	--		18	51	--	--	--	--	--	--
Feb. 11-20	1,834	32	3	6.7	158	--	--	--	--	--		23	43	--	--	--	--	--	--
Feb. 21-29	2,799	34	3	6.6	109	--	--	--	--	--		14	31	--	--	4.2	--	--	--
Mar. 1-10	2,291	35	2	6.8	114	--	--	--	--	--		10	32	--	--	4.1	--	--	--
Mar. 11-20	4,248	38	3	6.9	98.5	--	--	--	--	--		11	28	--	--	4.0	--	--	--
Mar. 21-31	4,527	45	3	6.7	81.6	--	--	--	--	--		7	24	--	--	2.4	--	--	--
Apr. 1-10	4,010	47	3	6.2	91.2	3.7	.06	8.4	2.8	3.3		7	27	2.4	.1	2.6	70	32	27
Apr. 11-20	5,314	46	8	6.4	85.6	--	--	--	--	--		12	24	--	--	2.5	--	--	--
Apr. 21-30	2,332	52	3	6.4	106	--	--	--	--	--		12	30	--	--	2.3	--	--	--
May 1-10	2,673	53	4	6.4	106	--	--	--	--	--		10	29	--	--	3.1	--	--	--
May 11-20	4,745	57	7	6.7	97.2	--	--	--	--	--		11	25	--	--	2.0	--	--	--
May 21-31	3,374	59	4	6.6	95.4	--	--	--	--	--		9	27	--	--	1.9	--	--	--
June 1-10	1,886	64	2	6.3	114	--	--	--	--	--		12	33	--	--	1.9	--	--	--
June 11-20	1,490	65	3	6.5	127	--	--	--	--	--		14	38	--	--	2.8	--	--	--
June 21-30	2,019	68	7	6.5	104	--	--	--	--	--		12	29	--	--	2.2	--	--	--
July 1-10	1,325	70	3	6.5	121	--	--	--	--	--		14	29	--	--	2.4	--	--	--
July 11-20	1,271	72	2	6.6	133	--	--	--	--	--		14	39	--	--	2.7	--	--	--
July 21-31	1,223	73	2	6.4	144	--	--	--	--	--		15	41	--	--	2.9	--	--	--
Aug. 1-10	1,248	69	2	6.3	156	--	--	--	--	--		16	48	--	--	3.3	--	--	--
Aug. 11-20	1,057	69	2	6.5	175	--	--	--	--	--		19	52	--	--	4.1	--	--	--
Aug. 21-31	1,298	72	2	6.4	174	--	--	--	--	--		21	50	--	--	4.0	--	--	--
Sept. 1-10	682	68	2	6.9	220	--	--	--	--	--		27	67	--	--	3.6	--	--	--
Sept. 11-20	585	69	1	6.9	227	--	--	--	--	--		23	72	--	--	3.6	--	--	--
Sept. 21-30	546	62	3	6.5	233	5.2	.06	20	7.5	12		22	74	4.5	.1	5.1	150	81	63
Average	1,897	51	3	--	143	--	--	--	--	--		15	43	--	--	--	--	--	--

LEHIGH RIVER AT CATASAUQUA, PA.

Chemical analyses, in parts per million, water year October 1948 to September 1949

Date of collection	Mean discharge (second feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$	
																				Total	Non carbonate
Oct. 1-10, 1948	508	57	4	6.3	254	6.0	--	.05	--	22	8.3	13		23	84	4.4	.1	5.2	164	89	70
Oct. 11-20	519	55	3	6.9	236	--	--	--	--	--	--	--		22	76	--	--	3.4	--	--	--
Oct. 21-31	473	50	2	6.8	229	--	--	--	--	--	--	--		28	74	--	--	3.8	--	--	--
Nov. 1-10	870	54	4	7.1	201	--	--	--	--	--	--	--		15	65	4.0	--	4.3	--	--	--
Nov. 11-20	793	47	3	6.9	183	--	--	--	--	--	--	--		13	59	3.8	--	3.4	--	--	--
Nov. 21-30	1,662	45	4	7.2	130	--	--	--	--	--	--	--		12	39	3.6	--	3.3	--	--	--
Dec. 1-10	1,252	--	3	7.1	141	--	--	--	--	--	--	--		12	44	3.1	--	3.7	--	--	--
Dec. 11-20	1,211	--	3	5.3	150	5.6	--	--	--	--	--	--		12	45	--	--	.7	--	--	--
Dec. 21-31	3,450	32	3	5.5	159	5.7	--	--	--	--	--	--		13	42	--	--	2.1	--	--	--
Jan. 1-10, 1949	7,230	37	6	6.6	96.3	6.2	--	.02	--	9.2	3.3	3.2		8	31	1.5	.1	2.8	69	36	30
Jan. 11-20	2,633	39	5	5.7	115	5.1	--	--	--	--	--	--		12	35	--	--	2.1	--	--	--
Jan. 21-31	2,880	37	4	6.2	110	5.9	--	--	--	--	--	--		15	31	2.4	--	3.2	--	--	--
Feb. 1-10	2,297	34	5	6.5	120	5.7	--	--	--	--	--	--		17	33	2.5	--	4.0	--	--	--
Feb. 11-20	2,256	38	4	6.6	123	5.6	--	--	--	--	--	--		18	33	2.5	--	3.8	--	--	--
Feb. 21-28	3,104	41	4	6.7	98.4	5.2	--	--	--	--	--	--		10	27	2.2	--	4.0	--	--	--
Mar. 1-10	2,108	38	4	6.8	110	4.5	--	--	--	--	--	--		18	32	--	--	3.1	--	--	--
Mar. 11-20	1,577	38	4	6.8	132	4.5	--	--	--	--	--	--		21	36	--	--	3.7	--	--	--
Mar. 21-31	1,402	50	7	7.1	131	5.1	--	--	--	--	--	--		19	34	--	--	3.6	--	--	--
Apr. 1-10	1,730	47	5	6.7	123	5	--	.24	--	12	3.9	4.9		19	33	2.6	.1	3.4	84	46	30
Apr. 11-20	2,658	50	7	6.8	108	5.0	--	--	--	--	--	--		17	27	--	--	2.1	--	--	--
Apr. 21-30	3,210	53	5	6.8	90.5	4.9	--	--	--	--	--	--		11	24	--	--	1.9	--	--	--
May 1-10	3,151	61	7	5.9	88.7	4.8	--	--	--	--	--	--		15	22	--	--	1.7	--	--	--
May 11-20	2,068	61	6	6.4	89.0	5.1	--	--	--	--	--	--		11	25	--	--	1.2	--	--	--
May 21-31	2,870	57	5	6.4	80.2	5.3	--	--	--	--	--	--		11	22	--	--	1.1	--	--	--
June 1-10	1,375	65	4	6.9	104	4.5	--	--	--	--	--	--		11	29	2.2	--	2.4	--	--	--
June 11-20	891	71	4	6.7	129	5.1	--	--	--	--	--	--		14	37	2.9	--	3.2	--	--	--
June 21-30	771	75	4	6.8	138	5.2	--	--	--	--	--	--		16	39	3.9	--	2.7	--	--	--
July 1-10	571	76	4	6.9	162	6.6	--	.08	--	16	5.6	4.1		21	45	3.4	.1	3.4	99	63	46
July 11-20	1,055	73	6	7.2	165	5.4	--	--	--	--	--	--		26	44	3.2	--	3.9	--	--	--
July 21-31	730	78	4	6.9	177	7.0	--	--	--	--	--	--		24	48	3.8	--	4.4	--	--	--
Aug. 1-10	650	77	4	6.9	167	7.8	--	--	--	--	--	--		23	48	3.2	--	3.8	--	--	--
Aug. 11-20	745	74	4	7.0	176	7.7	--	--	--	--	--	--		22	53	3.1	--	3.9	--	--	--
Aug. 21-31	659	71	4	6.9	172	6.7	--	--	--	--	--	--		19	53	3.6	--	3.5	--	--	--
Sept. 1-10	680	68	2	7.0	174	2.9	--	--	--	--	--	--		15	54	3.2	--	3.2	--	--	--
Sept. 11-20	626	65	3	7.1	192	3.0	--	--	--	--	--	--		17	60	3.5	--	3.8	--	--	--
Sept. 21-30	625	59	5	7.2	170	4.5	--	.04	--	15	5.4	7.8		21	50	3.2	.1	3.1	108	60	42
Average	1,696	55	4	6.7	145	5.4	--	--	--	--	--	--		17	43	--	--	3.1	--	--	--

SCHUYLKILL RIVER AT LANDINGVILLE, PA.

Chemical analysis, in parts per million, water year October 1947 to September 1948

Date of collection	Mean discharge (second feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as CaCO3: Total	Hardness as CaCO3: Non-carbonate	Total acidity as H_2SO_4
Dec. 10, 1947	176	--	7	3.85	789	20	5.7	0.22	5.9	72	45		12	0	422	3.0	0.0	0.5	713	425	425	85
Dec. 17	198	--	6	3.90	696	20	7.8	.18	5.2	68	39		--	0	366	6.0	.0	.1	663	390	390	77
Dec. 29	135	--	1	4.05	736	8.8	3.0	.16	5.8	64	43		22	0	394	4.0	.0	.1	600	368	368	72
Jan. 5, 1948	203	--	1	4.10	572	4.8	4.1	.80	3.8	49	32		5.2	0	285	3.0	.0	.2	436	290	290	46
Jan. 17	169	--	1	4.15	646	8.0	4.1	.44	2.5	58	36		9.5	0	326	4.0	.0	.1	504	324	324	46
Feb. 19	320	--	5	5.0	429	.8	1.8	1.2	1.6	38	22		7.1	0	200	6.0	.0	.1	315	201	201	10
Feb. 20	601	--	5	4.20	369	4.8	3.3	2.4	1.5	29	17		--	0	165	6.0	.0	.1	253	173	173	18
Feb. 26	426	--	5	4.40	384	5.6	1.9	1.1	1.9	33	20		7.2	0	185	4.0	.0	.1	288	183	183	16
Mar. 4	426	--	10	4.00	491	9.5	3.1	.74	2.5	38	23		5.8	0	221	3.0	.0	.0	343	222	222	36
Mar. 11	335	--	5	4.20	566	11	3.6	.11	2.5	46	28		7.6	0	260	4.0	.0	.0	415	258	258	50
Mar. 17	900	--	2	4.40	303	8.5	2.1	.07	1.5	24	14		2.6	0	126	5.0	.0	.7	196	133	133	30
Mar. 23	648	--	4	4.40	426	8.0	1.2	.62	1.9	36	23		6.0	0	193	6.0	.2	.0	304	197	197	35
Apr. 2	910	--	2	4.30	369	8.0	3.1	.16	1.5	29	18		4.1	0	164	5.0	.0	.0	258	169	169	33
Apr. 8	426	--	3	4.30	569	9.0	4.0	.25	2.9	46	30		11	0	270	7.0	.1	.1	420	268	268	62
Apr. 12	599	54	1	4.6	473	6.0	--	--	--	--	--		--	0	210	--	--	--	--	180	180	30
Apr. 20	523	51	2	4.25	541	10	2.9	.10	2.5	43	29		10	0	256	3.0	.0	.4	400	250	250	52
Apr. 23	354	--	3	4.30	579	10	3.6	.13	2.4	51	32		7.0	0	298	5.0	.0	.0	432	299	299	51
Apr. 30	244	--	5	4.30	681	10	5.1	.31	3.2	60	37		8.5	0	336	6.0	.1	.0	520	339	339	62
May 4	306	55	1	4.50	587	10	--	--	--	--	--		--	0	277	--	.0	--	--	270	270	49
May 7	895	--	6	4.6	334	7.0	2.5	.22	1.3	29	16		--	0	144	4.0	.0	.0	232	145	155	33
May 14	1270	--	5	4.70	357	8.5	2.3	.52	1.8	28	16		8.7	0	159	2.5	.0	.0	216	156	156	33
May 19	542	--	5	4.5	475	9.0	3.5	.38	2.1	48	28		2.4	3	210	7.0	.0	.1	365	259	259	86
May 25	347	--	1	4.35	583	6.5	1.9	.30	2.5	54	32		5.4	0	273	7.0	.0	1.1	438	283	283	84
June 2	273	--	5	4.10	778	11	3.3	.21	2.9	74	46		8.9	0	395	7.0	.0	.4	636	402	402	144
June 9	227	--	1	4.45	644	6.0	5.2	.14	3.4	69	34		4.6	0	322	5.0	.0	1.4	507	334	334	55
June 16	161	--	1	4.25	855	5.0	6.4	.26	5.2	84	50		9.2	0	455	6.0	.1	.8	710	463	463	77
June 23	157	--	1	4.35	838	8.0	3.7	.40	4.2	88	49		11	0	451	4.0	.1	.8	697	451	451	74
June 29	131	--	1	4.40	773	12	4.6	.17	4.0	74	45		12	0	395	12	.0	2.5	619	404	404	82
July 7	121	--	1	4.40	898	12	3.9	1.3	5.2	93	61		4.9	0	499	6.0	.0	1.4	770	518	518	86
July 13	114	72	1	4.40	1,050	--	--	--	--	--	--		--	0	570	--	.1	1.4	--	596	596	102
July 20	110	73	1	4.70	1,060	10	9.8	.28	6.6	100	63		10	0	572	3.0	.2	.2	860	579	579	72
July 23	268	75	2	5.0	615	7.0	5.5	4.2	3.6	58	32		--	4	300	6.0	2.3	2.3	473	325	321	46
July 27	144	--	1	4.30	934	--	--	--	--	--	--		--	0	395	8.0	.0	--	--	340	340	--
July 29	110	--	1	4.00	977	16	6.7	.53	6.5	92	57		13	0	520	3.5	.0	.9	808	520	520	126
Aug. 5	225	--	15	4.6	677	7.5	1.2	4.2	4.2	60	37		4.5	0	319	3.5	.1	.0	492	328	328	42
Aug. 8	120	--	1	4.00	1,040	9.5	11	.38	6.4	110	65		7.0	0	596	7.0	.0	.8	916	616	616	146
Aug. 13	110	--	2	4.30	991	9.5	4.1	.16	5.8	106	60		8.2	0	534	6.0	.0	.7	818	547	547	140
Aug. 19	131	--	2	4.40	778	8.0	1.1	.30	4.2	82	42		12	0	395	6.0	.1	.1	606	393	393	78
Aug. 25	105	--	1	3.95	1,160	14	15	.39	7.1	117	71		1.7	0	629	4.0	.1	.6	1,010	686	686	179
Sept. 2	58	67	1	3.90	1,070	13	--	--	--	--	--		--	0	600	4.0	.0	.7	--	535	535	137
Sept. 14	61	72	2	4.10	1,180	10	12	.14	6.6	118	73		4.8	0	677	3.0	.0	2.4	978	678	678	182
Sept. 17	58	64	1	4.00	1,080	14	10	.12	6.0	97	59		26	0	582	6.0	.0	.1	904	557	557	72
Sept. 21	--	--	3	4.5	1,130	9.5	11	1.6	6.4	109	65		15	0	611	9.0	.0	.3	966	616	616	146
Sept. 23	52	4	4	4.40	924	12	--	--	--	--	--		--	0	520	12	.0	.1	517	517	517	109
Sept. 29	48	64	2	4.20	1,160	6.0	8.0	.55	7.3	122	71		--	0	615	13	.0	1.3	978	659	659	178

RAPHS
OMMERCE
APRIL 1952
PYP712.17/9
[no. 24]
#24

SCHUYLKILL RIVER AT LANDINGVILLE, PA.

Chemical analysis, in parts per million, water year October 1948 to September 1949

60240

Date of collection	Mean discharge (second feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Noncarbonate	Total acidity as H_2SO_4
Oct. 8, 1948	73	52	5	4.35	1,150	14	7.1	0.74	6.6	120	68	12		0	617	10	0.0	2.8	976	633	633	162
Oct. 15	54	55	1	4.7	1,160	8.5	5.6	.34	4.6	111	67	21		5	595	10	.0	1.0	1,000	593	589	45
Oct. 20	66	54	7	4.20	1,090	14	8.0	1.0	5.1	104	59	21		0	571	7.0	.0	4.3	867	562	562	72
Oct. 25	54	56	1	4.25	935	12	7.8	.15	6.6	98	58	--		0	513	6.0	.0	2.5	783	542	542	94
Nov. 4	138	--	5	6.3	713	8.5	.8	4.3	3.3	68	37	17		28	330	6.5	.0	.3	534	344	321	28
Nov. 17	118	52	1	4.7	688	5.0	3.1	2.2	3.9	63	38	9.7		0	345	4.0	.0	.0	558	344	344	68
Nov. 22	406	46	1	4.35	449	10	2.0	.15	2.5	38	26	6.6		0	220	3.0	.0	.0	336	219	219	62
Dec. 1	241	42	1	4.30	617	6.5	7.3	.14	3.6	56	37	--		0	317	4.0	.0	.0	497	341	341	70
Dec. 9	203	44	1	4.30	644	10	9.7	.14	4.0	56	39	4.3		0	352	4.5	.0	.3	622	364	364	100
Dec. 17	248	40	1	4.40	645	12	8.9	.13	3.5	58	38	--		0	340	4.0	.0	.1	506	358	358	68
Dec. 22	189	38	1	4.40	694	12	8.9	.13	3.6	62	39	2.2		0	357	4.0	.0	.0	696	373	373	102
Dec. 30	1960	--	1	5.0	244	6.5	1.8	.11	1.3	24	14	4.2		2	127	3.5	.0	.6	196	130	128	22
Jan. 7, 1949	1330	44	4	4.10	388	7.0	2.5	.47	1.7	30	18	1.7		0	165	2.0	.0	.5	251	171	171	40
Jan. 11	598	43	2	4.05	576	12	7.9	.18	2.9	44	28	1.2		0	267	2.0	.0	.8	406	279	279	60
Jan. 19	301	47	2	4.40	674	6.0	9.7	.07	3.4	55	40	--		0	339	7.0	.0	.0	526	359	359	96
Jan. 28	618	40	3	4.6	417	5.5	3.9	.06	2.0	36	23	3.2		0	199	6.5	.0	.8	302	210	210	58
Feb. 3	350	31	4	4.10	600	8.0	4.6	.10	3.2	48	30	9.1		0	283	2.0	.0	1.5	423	279	279	56
Feb. 11	270	33	5	4.20	659	7.6	3.9	.10	3.5	54	33	13		0	307	6.0	.0	2.0	464	299	299	50
Feb. 15	301	39	5	4.35	594	7.6	4.6	.10	3.2	47	30	13		0	284	4.0	.0	1.3	426	271	271	46
Feb. 23	485	41	2	4.35	428	7.2	2.9	.07	2.1	30	20	9.6		0	186	3.0	.0	1.6	274	178	178	44
Mar. 2	309	38	3	4.35	521	6.5	4.1	.15	2.7	44	27	5.2		0	247	2.5	.0	.8	335	250	250	50
Mar. 10	239	44	4	4.30	601	6.5	5.6	.37	3.3	50	33	4.5		0	295	2.0	.0	.7	442	301	301	62
Mar. 16	180	39	1	4.35	591	12	6.7	.09	3.7	50	30	4.2		0	286	3.0	.0	.7	430	293	293	57
Mar. 22	157	--	4	4.30	650	7.0	4.4	.19	3.5	59	34	7.1		0	318	3.0	.0	.6	477	320	320	52
Mar. 30	135	64	5	4.6	658	12	5.0	.10	3.5	59	33	10		3	319	3.0	.0	.6	470	317	315	43
Apr. 7	315	50	10	4.10	436	8.0	2.3	.12	2.6	34	19	4.9	--	0	184	3.0	.0	2.8	304	185	185	38
Apr. 14	504	--	3	4.20	345	4.6	2.8	.08	1.8	25	15	3.5		0	140	3.0	.0	4.9	247	146	146	32
Apr. 20	467	--	1	4.40	428	9.2	4.8	.12	2.2	28	21	7.9		0	193	2.5	.0	1.1	290	188	188	38
Apr. 26	456	59	3	4.5	424	8.8	4.3	.12	2.1	31	22	2.7		0	189	3.0	.0	.9	288	196	196	37
May 6	239	71	4	4.40	582	9.6	5.4	.09	2.4	49	28	12		0	281	3.5	.0	1.1	487	273	273	54
May 11	210	59	2	4.7	682	11	5.5	.15	3.5	61	36	6.9		2	330	4.5	.0	1.3	520	338	336	48
May 18	144	63	5	4.6	703	9.6	3.4	.35	3.7	62	37	14		1	342	5.0	.1	.9	537	333	333	41
May 24	280	63	3	4.40	476	9.4	4.7	.08	2.5	38	23	6.0		0	218	3.0	.0	3.8	346	221	221	45
June 2	173	69	3	4.5	586	9.2	3.9	.08	3.5	51	31	9.5		4	285	2.0	.0	.9	477	283	280	46
June 7	138	72	3	4.40	711	8.2	3.6	.11	4.2	63	37	10		0	338	5.0	.1	.9	539	338	338	51
June 16	127	75	1	4.6	768	13	5.4	.22	3.8	70	42	8.0		2	376	6.0	.0	.9	593	385	383	46
June 23	86	76	2	5.0	851	12	2.4	.18	4.1	77	46	12		3	400	7.0	.0	.8	661	403	400	32
June 27	86	75	2	4.35	754	11	7.6	.14	4.4	67	35	13		0	366	6.0	.0	1.2	587	363	363	60
July 8	70	81	2	4.6	891	9.6	1.3	.19	4.9	86	48	10		0	423	6.0	.0	.8	681	429	427	28
July 14	68	72	5	4.40	949	10	4.4	.19	5.3	86	48	24	--	0	466	7.5	.0	7.8	734	448	448	58
July 21	78	82	5	4.40	845	9.5	2.3	.15	3.9	76	41	30	--	0	411	8.0	.0	9.0	640	380	380	30
July 27	110	82	7	4.10	726	11	2.5	.14	3.7	68	35	16	--	0	339	5.0	.0	6.6	548	339	339	38
Aug. 2	60	70	5	4.5	834	12	2.2	.20	4.7	82	49	23	--	0	451	8.0	.0	.2	639	427	427	34
Aug. 10	41	87	6	4.9	983	11	--	.20	4.8	92	55	32	--	0	502	10	.0	.1	764	465	463	18
Aug. 18	84	68	10	6.1	870	9.0	--	.51	4.6	84	50	21	--	17	421	14	.0	.4	663	425	411	--
Aug. 23	42	67	7	5.1	978	9.5	--	.31	5.2	95	55	32	--	2	508	8.0	.0	.0	768	474	472	--
Sept. 2	66	66	6	4.40	1,160	12	6.7	.20	7.6	114	61	35	--	0	622	10	.0	1.2	980	588	588	88
Sept. 7	71	62	5	3.80	980	11	5.6	.25	5.7	86	47	23	--	0	464	10	.0	12	748	458	458	62
Sept. 16	48	69	10	4.05	1,090	11	2.8	.12	6.1	100	50	45	--	0	536	8.0	.0	11	882	486	486	46
Sept. 21	56	62	5	4.30	1,150	12	6.3	.08	6.5	105	59	50	--	0	613	9.0	.0	3.4	1,040	554	554	70
Sept. 27	46	60	5	3.95	1,160	12	8.0	.13	6.8	108	58	38	--	0	622	8.0	.0	2.8	1,040	554	554	70

SCHUYLKILL RIVER AT AUBURN, PA.

Chemical analyses, in parts per million, water year October 1947 to September 1948

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$: Total	Hardness as $CaCO_3$: Non carbonate	Total acidity as H_2SO_4
Dec. 3, 1947	228	—	10	4.15	593	15	8.3	0.18	3.8	5*	31	--	--	0	286	4.0	0.0	0.7	502	324	324	108
Dec. 18	200	—	1	4.20	668	12	4.7	.12	2.7	62	37	10	--	0	346	2.0	.0	.6	494	341	341	52
Dec. 20	185	—	1	4.10	743	16	7.9	.10	3.2	76	42	13	--	0	429	2.0	.0	.6	—	421	421	61
Dec. 30	145	—	1	4.10	614	14	4.5	.30	2.5	54	32	12	--	0	312	2.0	.0	.5	513	301	301	61
Jan. 8 1948	226	—	1	4.20	809	14	6.2	.20	2.6	80	45	6	--	0	428	3.0	.0	.5	697	428	428	74
Feb. 15	260	—	1	4.40	623	9.6	3.0	.15	1.5	53	28	28	--	0	313	2.0	.0	1.9	510	268	268	34
Feb. 19	460	—	1	4.6	346	8.8	1.2	.26	1.7	32	20	--	--	0	155	2.0	.0	.0	249	173	173	23
Feb. 20	760	—	1	4.6	277	10	1.2	.41	2.0	32	14	--	--	0	129	2.0	.0	.0	206	149	149	25
Feb. 27	590	—	1	4.45	290	9.6	3.7	.04	1.2	33	16	--	--	0	162	2.0	.0	.0	262	180	180	26
Mar. 5	415	—	1	4.20	454	9.2	10	.25	1.6	39	23	--	--	0	226	2.0	.0	.1	358	254	254	40
Mar. 10	364	—	9	4.50	237	11	5.7	.18	1.1	30	10	--	--	0	103	4.0	.0	.9	205	150	150	24
Mar. 17	364	—	11	4.40	452	15	6.2	.24	4.5	41	26	--	--	0	210	6.0	.0	.0	395	253	253	34
Mar. 26	1,250	—	12	4.30	475	18	8.7	.33	3.2	41	26	--	--	0	232	2.0	.0	.0	448	266	266	89
Mar. 31	483	—	10	4.30	507	24	8.8	.23	3.2	50	30	--	--	0	266	4.0	.0	.1	484	305	305	81
	328	—	11	4.35	398	17	14	.17	2.5	34	24	--	--	0	193	2.0	.0	.5	399	268	268	76
Apr. 6	518	—	11	4.20	567	16	15	.17	3.1	52	30	--	--	0	272	4.0	.0	.5	481	346	346	104
Apr. 23	447	—	9	4.15	648	17	9.9	.18	4.0	66	36	--	--	0	343	4.0	.0	.4	595	379	379	98
Apr. 30	272	—	1	4.40	621	5.5	3.9	.15	3.3	59	34	3.5	--	0	305	4.0	.0	.7	489	316	316	62
May 7	1,060	—	1	5.2	285	4.5	1.2	.14	1.3	26	13	3.4	--	6	119	4.0	.1	.5	202	128	123	23
May 14	1,290	—	1	4.7	295	2.5	1.0	.10	1.5	26	13	2.2	--	0	122	3.0	.0	.5	204	127	127	34
May 21	650	—	1	4.40	477	6.0	5.7	.14	1.9	41	24	2.9	--	0	230	2.0	.0	2.0	352	238	238	61
May 25	419	—	1	4.30	601	11	5.5	.05	3.1	51	30	13	--	0	294	7.0	.0	1.4	470	289	289	80
June 3	263	—	1	4.25	698	17	6.0	.08	3.6	68	38	3.6	--	0	349	8.0	.0	1.5	570	368	368	64
June 8	443	—	1	4.5	480	9.1	.4	.15	1.7	45	24	8.4	--	0	215	7.0	.0	1.7	362	217	217	35
June 14	180	—	1	4.30	719	13	5.9	.22	3.8	66	43	7.9	--	0	372	9.0	.0	1.1	606	384	384	96
June 16	171	—	2	4.30	852	14	4.8	.26	5.2	81	52	2.2	--	0	439	2.0	.0	.3	672	455	455	58
June 21	208	—	2	4.40	599	11	1.9	.15	3.5	53	37	1.1	--	0	289	6.0	.0	.5	442	302	302	40
July 8	178	—	1	4.35	767	15	6.3	.28	3.8	67	45	4.8	--	0	379	8.0	.0	.7	591	396	396	54
July 15	113	—	1	4.20	856	8.0	4.3	.32	2.0	82	51	3.1	--	0	426	6.0	.0	.8	682	446	446	62
July 23	145	—	1	4.30	896	11	8.5	.85	5.2	67	53	4.2	--	0	477	6.0	.0	.4	731	496	496	92
July 29	301	—	1	5.1	558	5.0	2.7	1.7	3.6	51	28	--	--	0	257	2.0	.0	.1	408	268	268	50
	115	—	1	4.10	983	18	11	.31	6.0	90	54	7.7	--	0	512	3.5	.0	3.0	790	524	524	88
Aug. 5	202	—	1	4.5	924	10	4.9	1.9	6.0	94	54	2.3	--	4	476	4.0	.0	.5	922	500	497	82
Aug. 10	90	—	1	4.05	969	20	12	.41	6.9	98	59	5.2	--	0	553	4.5	.0	1.0	1,010	572	572	148
Aug. 17	80	—	5	4.5	983	9.0	5.9	.58	5.2	98	59	--	--	0	500	4.0	.1	.0	790	531	531	110
Aug. 27	88	—	1	4.25	940	16	16	.45	5.4	92	52	4.5	--	0	530	5.5	.0	.8	1,020	545	545	116
Sept. 2	110	—	1	4.10	1,140	16	7.3	.12	7.6	120	73	1.8	--	0	632	3.0	.0	.1	992	658	658	108
Sept. 9	125	—	5	4.8	1,070	10	6.4	4.8	6.4	106	63	2.0	--	0	559	3.0	.0	2.2	882	584	584	134
Sept. 15	62	—	1	4.00	1,080	16	16	.10	6.4	101	50	8.1	--	0	547	7.0	.0	2.4	892	564	564	108
Sept. 24	62	—	1	4.6	1,050	8.0	11	2.3	6.8	106	61	6.2	--	0	575	7.0	.0	.0	912	595	595	78
Sept. 29	57	61	1	4.8	1,010	15	8.4	3.1	6.1	107	59	9.2	--	0	564	6.0	.0	.1	856	576	576	52

RAPHS
OMMERCE
APRIL 1952
PYP712.17/9
no. 24
#24

DELAWARE RIVER BASIN—Continued

SCHUYLKILL RIVER AT AUBURN, PA.

Chemical analysis, in parts per million, water year October 1948 to September 1949

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Noncarbonate	Total acidity as H_2SO_4
Oct. 8, 1948	80	56	1	4.9	944	13	1.6	1.7	5.7	96	55	24		0	513	6.0	0.0	0.1	785	490	490	30
Oct. 15	52	53	1	4.6	968	12	5.6	.28	5.0	104	55	15		0	524	8.0	.0	2.0	808	527	527	36
Oct. 20	73	50	1	4.7	894	6.5	1.6	.72	6.0	82	48	37		4	466	10	.0	1.0	726	424	420	–
Oct. 27	59	50	1	4.8	924	11	.8	.91	6.4	93	51	23		2	473	10	.0	1.7	743	461	459	–
Nov. 5	123	57	1	4.9	761	7.0	2.8	.15	3.6	71	44	13		3	379	8.0	.0	.2	610	381	378	56
Nov. 16	148	–	1	4.10	742	6.5	9.0	.12	4.0	60	41	5.7		0	365	4.0	.0	1.6	574	374	374	130
Nov. 22	439	–	1	4.35	419	5.0	3.1	.10	2.5	34	23	–		0	190	4.0	.1	.8	292	202	202	66
Dec. 1	291	–	1	4.30	598	7.5	6.2	.20	3.4	48	34	–		0	280	4.0	.1	.6	448	303	303	105
Dec. 8	254	–	1	4.10	601	12	4.7	.07	1.6	58	34	9		0	321	2.0	.0	.7	513	318	318	54
Dec. 10	223	–	5	4.40	616	5.0	2.5	.18	3.7	53	37	2.5		0	294	4.0	.1	.0	466	307	307	94
Dec. 14	190	–	1	4.5	674	7.0	6.3	.09	2.1	60	39	3.0		0	336	4.0	.0	.2	527	349	349	92
Dec. 20	223	36	2	4.10	536	13	8.4	.18	2.8	38	27	3.3		0	250	3.5	.0	5.2	379	262	262	58
Jan. 7, 1949	530	41	1	4.25	310	12	4.8	.15	1.3	21	14	2.2		0	135	3.5	.0	.8	201	141	141	33
Jan. 14	463	39	1	4.20	610	14	8.3	.25	3.4	48	32	1.6		0	294	2.5	.0	1.6	444	307	307	64
Jan. 17	353	46	2	4.15	670	14	8.9	.22	3.5	51	35	7.3		0	328	2.0	.0	2.7	501	331	331	72
Jan. 26	544	43	3	4.25	504	12	5.4	.13	2.5	40	26	3.5		0	234	3.5	.0	3.5	348	244	244	47
Feb. 3	419	33	4	4.05	569	7.5	5.7	.17	3.0	44	29	5.8		0	266	3.5	.0	2.0	402	271	271	61
Feb. 11	338	34	5	4.25	568	9.0	6.5	.17	2.9	43	28	9.2		0	269	4.0	.0	.9	398	266	266	54
Feb. 15	353	38	1	4.45	538	7.6	1.8	.09	2.7	44	26	14		0	248	3.0	.0	1.9	356	233	233	38
Feb. 21	500	43	1	4.5	426	6.8	1.2	.12	2.2	33	21	11		2	189	2.0	.0	2.1	277	180	178	30
Mar. 2	375	39	1	4.30	481	11	4.8	.62	2.5	37	24	3.2		0	217	3.0	.0	3.4	334	226	226	39
Mar. 10	288	44	1	4.45	555	8.0	3.3	.10	3.0	44	28	13		0	260	4.0	.0	1.1	389	250	250	45
Mar. 16	220	–	4	4.5	572	7.5	3.6	.14	3.0	49	31	8.3		3	275	3.0	.0	.6	401	276	273	56
Mar. 23	245	52	4	4.7	543	6.0	3.3	.17	2.6	50	26	8.0		4	252	4.5	.0	.6	385	255	252	29
Mar. 31	190	52	1	4.5	639	12	3.8	.10	3.4	55	33	11		0	305	3.5	.0	1.6	466	301	301	41
Apr. 6	443	46	5	4.45	356	7.0	2.8	.04	2.0	29	16	6.9		0	150	4.5	.0	3.9	249	157	157	28
Apr. 12	304	–	4	4.20	438	5.8	3.3	.10	2.4	34	21	3.7		0	192	2.0	.0	3.2	320	197	197	36
Apr. 20	572	50	1	4.40	361	8.2	3.4	.05	1.8	28	16	3.5		0	155	2.5	.0	2.1	248	159	159	30
Apr. 28	463	62	1	4.7	453	9.2	4.2	.17	2.1	37	21	3.7		0	200	3.0	.0	2.4	303	206	206	40
May 6	260	68	5	4.5	545	9.2	4.0	.07	2.8	46	26	9.9		0	255	3.0	.1	.9	387	249	249	33
May 13	192	60	3	4.45	648	9.0	5.3	.17	3.6	56	28	17		0	310	3.5	.0	.9	507	292	292	44
May 18	157	64	3	4.6	645	9.0	3.5	.12	3.2	55	32	16		8	302	5.0	.0	.9	485	294	288	36
May 25	383	59	2	4.6	425	7.6	2.9	.10	2.2	36	19	8.6		3	190	4.0	.0	1.5	298	188	186	26
May 31	248	68	4	4.40	555	8.8	4.4	.10	3.2	45	28	5.2		0	255	3.0	.0	.6	421	259	259	44
June 7	141	69	4	4.40	658	11	4.4	.11	3.4	55	33	14		0	314	5.0	.1	.9	492	305	305	36
June 15	119	76	2	4.40	771	9.8	5.1	.23	4.5	67	39	15		0	374	6.0	.0	1.2	612	366	366	44
June 20	102	83	3	4.25	696	11	1.9	.15	5.1	61	36	7.1		0	319	4.0	.0	.3	530	323	323	52
June 28	92	82	4	4.40	808	12	3.8	.25	5.2	72	41	13		0	383	6.0	.0	.7	636	380	380	50
July																						
July 11	75	82	6	3.85	824	12	3.0	.19	5.0	76	40	20	—	0	405	6.0	.0	8.2	628	388	388	60
July 20	73	90	6	4.30	851	10	3.1	.16	4.3	76	42	26	—	0	417	7.5	.0	8.6	626	390	390	34
July 26	73	81	5	4.00	835	10	3.9	.15	4.5	75	39	20	—	0	402	8.0	.0	5.2	632	383	383	58
Aug. 3	60	73	5	4.5	791	10	2.8	.11	4.5	74	39	20	—	0	384	7.5	.0	1.3	614	369	369	40
Aug. 9	57	83	5	4.6	957	9.5	1.1	.24	4.5	87	49	32	—	1	484	10	.0	.3	738	434	433	29
Aug.																						
Aug. 18	92	67	5	4.9	847	9.5	2.8	.10	4.4	80	44	22	—	3	421	9.5	.0	1.1	664	404	402	20
Aug. 23	45	66	5	4.8	927	12	.8	.31	4.6	85	48	30	—	2	464	9.0	.0	.1	684	423	422	26
Sept. 2	69	65	6	4.45	1,000	14	6.9	.31	5.8	92	52	27	—	0	533	6.5	.0	.1	822	494	494	64
Sept. 9	62	61	7	3.95	967	12	5.5	.10	4.9	90	42	32	—	0	475	6.0	.0	13	762	442	442	46
Sept. 12	66	74	7	3.80	986	14	5.9	.18	5.4	88	42	30	—	0	476	8.0	.0	10	759	444	444	66
Sept. 20	66	63	5	4.05	1,010	12	5.2	.12	5.6	94	63	33	—	0	520	11	.0	7.4	834	496	496	52

SCHUYLKILL RIVER AT BERNE, PA.

Chemical analyses, in parts per million, water year October 1947 to September 1948

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$		Total acidity as H_2SO_4
																				Total	Non carbonate	
Dec. 11, 1947	426	--	7	4.10	541	10	13	0.84	--	42	23	--		0	245	6.0	0.0	--	387	278	278	63
Dec. 16	748	--	4	4.40	495	20	5.4	6.0	--	38	20	6.3		0	223	4.0	.0	--	367	224	224	39
Dec. 22	444	--	4	4.00	533	20	11	1.2	--	40	24	--		0	239	6.0	.0	--	378	268	268	41
Dec. 31	402	--	6	4.00	619	15	10	.94	--	41	18	42		0	307	8.0	.1	--	458	240	240	79
Jan. 7, 1948	502	--	7	4.70	487	12	9.1	.85	--	39	20	--		0	215	6.0	.0	--	341	236	236	44
Jan. 12	410	--	8	3.90	578	5.0	12	1.4	--	41	25	--		0	264	6.0	.0	--	416	282	282	78
Jan. 20	310	--	5	3.90	636	10	11	1.2	--	45	26	12		0	296	6.0	.0	--	462	290	290	103
Feb. 13-17	509	34	1	4.00	575	8.4	4.8	.04	3.0	45	25	20	3.5	0	261	9.0	.1	1.4	400	252	252	50
Feb. 18-20	1600	38	1	4.30	271	6.8	1.0	.04	1.1	21	12	9.4	3.0	0	110	2.0	.1	.3	172	111	111	20
Feb. 21-29	1360	41	1	4.30	314	8.6	3.1	.02	1.4	22	12	8.3	1.9	0	131	1.5	--	.1	204	126	126	36
Mar. 1-10	1140	40	1	4.35	356	8.4	3.0	.02	1.6	26	15	8.5	1.8	0	152	2.5	.1	.2	237	147	147	30
Mar. 11-20	1580	44	1	4.30	336	8.2	2.9	.02	1.7	24	14	7.4	1.8	0	142	1.5	.1	.1	223	139	139	34
Mar. 21-31	1150	52	1	4.35	356	8.6	3.7	.02	1.7	25	16	7.9	1.9	0	155	2.0	.1	.1	237	153	153	39
Apr. 1-10	1540	53	3	3.80	316	8.7	3.0	.03	1.4	22	14	6.2	1.6	0	133	1.0	.1	.2	202	140	140	36
Apr. 11-20	1790	51	1	4.15	316	9.3	3.8	.03	1.4	21	14	5.9	1.5	0	130	1.0	.1	.2	199	137	137	39
Apr. 21-30	822	58	1	4.20	479	9.8	5.3	.03	2.5	37	23	10	2.1	0	218	2.5	.1	.4	334	224	224	50
May 1-4	658	58	3	4.25	519	9.6	5.6	.05	2.7	41	27	11	2.0	0	240	2.0	.1	1.0	369	252	252	57
May 5-10	2200	52	1	4.25	266	8.0	2.7	.05	1.1	17	11	5.6	1.8	0	107	1.0	.1	.2	164	107	107	32
May 11-20	2050	61	1	4.25	332	9.4	3.9	.04	1.5	22	15	6.1	1.4	0	140	1.0	.1	.2	215	143	143	38
May 21-31	969	--	15	4.10	462	10	5.0	.78	4.2	35	21	6.0	1.1	0	207	3.0	.1	.6	321	215	215	61
June 1-10	592	--	5	4.00	540	5.2	5.2	.06	4.5	43	26	7.1	1.0	0	251	3.5	.0	1.5	394	256	256	64
June 11-17	437	--	10	4.00	616	11	9.7	.06	4.0	50	29	7.2	1.2	0	293	2.8	.0	1.5	449	310	310	64
June 18-27	471	--	3	4.30	522	9.6	8.2	.15	3.1	52	28	--		0	272	4.0	.1	1.2	413	298	298	59
June 28 to July 7	316	--	5	4.15	581	8.4	8.8	.17	3.2	50	30	3.2		0	299	6.5	.0	3.1	456	315	315	76
July 8-17	250	--	2	3.90	718	12	12	.27	4.2	64	39	7.0		0	386	8.5	.1	3.4	578	400	400	97
July 18-31	327	--	5	3.90	725	11	7.8	.21	4.2	63	42	15		0	392	6.0	.1	3.6	584	388	388	108
Aug. 1-10	264	--	5	4.00	736	12	8.3	.21	4.3	63	44	20		0	415	4.5	.0	2.9	608	398	398	102
Aug. 11-20	220	--	3	3.95	783	13	6.6	.22	4.6	73	45	16		0	425	5.5	.1	2.6	658	418	418	112
Aug. 21-31	271	--	2	4.00	675	13	6.0	.19	3.8	61	38	6.2		0	345	5.0	.0	1.7	542	354	354	82
Sept. 1-10	193	--	5	4.20	836	9.2	9.5	.25	5.6	77	47	16		0	460	6.0	.0	.3	708	452	452	--
Sept. 11-20	156	66	7	4.20	873	14	12	.40	2.7	88	50	8.0		0	487	7.0	.0	1.5	755	501	501	122
Sept. 21-30	138	58	7	4.00	851	18	13	.15	5.8	84	46	6.3		0	466	6.0	.0	2.9	730	485	485	120

APRIL 1952

DELAWARE RIVER BASIN--Continued

SCHUYLKILL RIVER AT BERNE, PA.

Chemical analysis, in parts per million, water year October 1948 to September 1949

60240

Date of collection	Mean discharge (second feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$		Total acidity as H_2SO_4
																				Total	Non carbonate	
Oct. 1-10, 1948---	176	56	7	4.25	831	12	12	0.12	5.0	85	45	1.3		0	451	6.0	0.0	0.2	721	475	475	112
Oct. 11-20--------	158	50	7	4.35	793	13	8.8	.21	4.5	79	44	6.8		0	425	6.0	.0	.6	676	437	437	102
Oct. 21-31--------	136	44	1	4.50	844	10	6.0	.16	3.8	86	47	7.5		0	436	7.0	.0	1.2	690	448	448	147
Nov. 1-10---------	375	--	3	4.35	672	6.0	2.1	1.4	3.6	62	35	14		0	328	7.0	.0	.1	514	322	322	92
Nov. 11-20--------	392	45	1	4.10	610	5.0	8.4	.38	3.6	52	32	7.1		0	315	5.0	.0	.2	577	320	320	94
Nov. 21-Dec. 1----	678	44	1	4.35	434	5.5	7.6	.16	2.6	34	20	2.5		0	208	3.0	.0	.1	384	216	216	72
Dec. 2-11---------	522	40	1	4.45	489	7.5	9.9	.13	2.6	43	28	4.3		0	276	4.0	.0	.1	464	284	284	74
Dec. 12-20--------	528																					
Dec. 21-31--------	1620	37	2	4.10	469	6.5	6.5	.10	2.2	34	20	6.1		0	209	4.0	.0	2.1	301	212	212	--
Jan. 1-10, 1949---	2590	40	2	4.15	305	6.0	4.1	.11	1.2	22	12	3.1		0	130	2.0	.0	1.5	182	133	133	--
Jan. 11-20--------	893	42	2	4.00	486	6.5	7.1	.08	2.0	36	21	6.6		0	222	4.0	.0	2.7	324	225	225	64
Jan. 21-31--------	1260	39	5	4.00	403	7.5	5.2	.13	1.9	32	20	7.5		0	202	3.5	.0	1.1	268	200	200	54
Feb. 1-10---------	895	36	2	4.15	402	6.5	3.5	.18	1.9	29	19	4.3		0	174	3.0	.0	1.2	284	177	177	52
Feb. 11-20--------	880	41	5	4.25	403	6.4	3.1	.12	1.9	30	18	8.2		0	176	4.0	.0	1.1	266	172	172	42
Feb. 21-28--------	1340	42	4	4.30	301	5.6	2.7	.10	1.3	20	12	7.5		0	125	3.0	.0	1.0	186	119	119	28
Mar. 1-10---------	748	40	4	4.25	394	8.0	3.0	.25	2.0	30	19	4.6		0	171	4.0	.0	3.0	279	176	176	49
Mar. 11-20--------	512	37	4	4.20	456	8.0	1.9	.27	2.5	36	23	2.6		0	193	4.5	.0	2.0	345	203	203	59
Mar. 21-31--------	455	50	4	4.30	462	9.6	8.4	.13	2.6	36	23	6.3		0	237	3.0	.0	1.2	318	238	238	64
Apr. 1-10---------	871	45	3	4.45	339	8.4	3.3	.13	1.7	26	16	1.4		0	146	2.5	.0	1.2	223	153	153	42
Apr. 11-20--------	1110	50	2	4.25	296	6.4	2.3	.11	1.4	21	11	5.8		0	118	2.0	.0	2.8	193	115	115	36
Apr. 21-30--------	1320	52	2	4.30	279	6.8	2.3	.08	1.2	20	11	5.4		0	114	3.0	.0	1.5	185	112	112	28
May 1-10----------	744	61	2	4.35	392	7.8	4.0	.13	2.0	29	17	6.5		0	171	3.0	.0	1.6	269	170	170	50
May 11-20---------	501	61	4	4.6	516	10	7.0	.12	2.6	37	21	13		2	231	3.5	.0	3.8	353	223	221	62
May 21-31---------	748	57	2	4.8	380	7.8	4.2	.10	2.0	27	16	8.6		4	164	2.5	.0	1.8	257	160	157	44
June 1-10---------	355	63	3	4.7	536	10	7.2	.12	2.7	41	24	9.3		1	250	3.0	.0	1.5	374	246	245	68
June 11-20--------	263	72	1	4.15	649	10	8.4	.19	3.8	51	29	11		0	305	6.0	.0	3.2	475	304	304	76
June 21-30--------	208	74	2	4.05	700	11	8.2	.18	4.0	57	31	11		0	328	5.0	.0	2.2	522	327	327	74
July 1-10---------	158	73	5	3.80	824	12	9.1	.19	4.5	62	38	21	--	0	392	8.0	.0	8.1	596	378	378	93
July 11-20--------	199	73	5	3.90	738	10	6.5	.19	4.0	60	34	20	--	0	351	8.0	.0	8.1	528	340	340	72
July 21-31--------	207	77	5	3.80	773	12	11	.22	4.0	66	27	22	--	0	366	8.0	.0	8.4	556	353	353	85
Aug. 1-10---------	139	76	7	3.80	897	13	12	.19	4.6	77	37	25	--	0	443	10	.0	8.6	678	428	428	97
Aug. 11-20--------	147	73	5	3.70	894	12	7.8	.18	4.9	74	41	28	--	0	440	8.0	.0	8.8	666	416	416	100
Aug. 21-31--------	144	71	5	3.70	907	12	9.9	.24	4.9	72	43	27	--	0	437	8.0	.0	8.8	670	431	431	118
Sept. 1-10--------	159	65	8	3.80	855	14	12	.16	4.8	72	36	18	--	0	422	7.0	.0	7.2	668	412	412	114
Sept. 11-20-------	166	64	6	3.80	906	14	14	.13	5.0	79	38	17	--	0	452	7.0	.0	6.8	712	449	449	106
Sept. 21-30-------	167	58	8	3.80	876	12	13	.21	4.9	70	36	20	--	0	426	7.0	.0	7.4	693	413	413	104

Schuylkill River at Pottstown, Pa.

Chemical analyses, in parts per million, water year October 1946 to September 1947

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Kx10⁶ 1/ at 25°C.)	Silica (SiO_2)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Non-carbonate
Oct. 1-10, 1946	713	62	---	7.3	44.0	8.2	0.05	---	44	18	16		48	154	11	---	5.5	292	184	144
Oct. 11-20	730	58	6	6.9	42.4	7.0	.06	---	42	17	15		40	148	11	---	5.9	283	175	142
Oct. 21-31	1,083	59	7	6.8	38.4	7.0	.10	---	38	15	17		38	138	9.5	---	5.8	259	156	125
Nov. 1-10	856	58	5	6.9	40.4	8.2	.06	---	40	16	14		36	141	10	---	5.8	267	166	136
Nov. 11-20	672	47	5	7.0	43.3	8.2	.06	---	42	17	17		51	142	12	---	6.8	286	175	133
Nov. 21-30	635	48	3	6.8	47.9	6.4	.05	---	47	19	19		45	167	13	---	8.7	332	195	158
Dec. 1-10	541	38	4	7.0	49.1	6.0	.06	---	49	21	15		45	174	13	---	7.1	330	209	172
Dec. 11-20	531	41	5	6.8	50.3	5.2	.06	---	50	21	19		43	183	14	---	9.0	344	211	176
Dec. 21-31	1,215	37	5	6.9	34.8	6.4	.03	---	34	14	11		33	117	8.0	---	6.3	225	142	115
Jan. 1-10	949	35	3	6.7	35.8	7.4	.04	---	35	14	14		41	116	10	---	8.0	236	145	111
Jan. 11-20	1,549	39	4	6.8	29.1	6.8	.05	---	30	11	11		43	89	7.9	---	5.4	194	120	85
Jan. 21-31	3,099	40	3	6.6	22.6	8.0	.03	---	23	8.3	6.9		26	71	5.4	---	4.6	143	92	70
Feb. 1-10	2,914	35	3	6.7	23.8	7.4	.03	---	24	8.7	7.8		28	73	5.6	---	7.1	154	96	73
Feb. 11-20	1,243	36	3	6.7	33.5	7.4	.07	---	34	13	11		38	107	8.2	---	9.0	222	138	107
Feb. 21-28	945	34	4	6.8	35.5	7.2	.05	---	35	14	14		45	110	12	---	9.8	238	145	108
Mar. 1-10	1,254	38	4	6.8	32.9	7.0	.05	---	33	13	9.0		44	99	9.0	---	4.4	219	136	100
Mar. 11-20	3,799	42	3	6.7	21.5	7.0	.03	---	22	7.9	6.7		29	64	5.8	---	4.2	141	87	64
Mar. 21-31	2,105	43	4	6.7	27.1	7.0	.03	---	26	11	8.1		26	89	6.5	---	5.7	178	110	89
Apr. 1-10	2,367	48	3	6.8	26.3	7.2	.04	---	26	10	7.5		28	83	6.2	---	5.1	174	106	83
Apr. 11-20	2,232	53	3	6.9	26.2	7.0	.05	---	26	9.8	8.8		30	84	6.0	---	4.6	173	105	81
Apr. 21-30	2,157	51	3	6.8	26.6	7.2	.03	---	26	10	8.6		28	87	6.0	---	3.2	191	106	83
May 1-10	4,449	53	4	6.8	20.1	7.4	.05	---	20	7.6	6.2		26	63	3.9	---	2.7	141	81	60
May 11-20	2,416	58	2	6.7	27.4	6.2	.05	---	27	11	7.7		26	93	5.5	---	4.2	182	113	91
May 21-31	6,257	62	4	6.5	20.4	6.6	.07	---	20	8.0	5.2		19	68	3.8	---	3.1	138	83	67
June 1-10	3,208	65	3	6.6	28.5	9.2	.25	---	28	12	6.3		20	102	5.2	---	3.6	189	119	103
June 11-20	2,887	66	2	6.7	29.3	9.4	.33	---	29	12	7.6		20	107	5.2	---	3.8	205	122	105
June 21-30	1,429	72	2	6.8	38.0	9.6	.36	---	38	17	7.0		24	141	6.8	---	4.8	263	165	145
July 1-10	3,068	74	5	6.5	33.3	6.4	.27	---	32	15	8.7		20	128	5.5	---	3.9	241	142	125
July 11-20	5,221	72	1	6.0	27.1	7.4	.08	---	25	12	6.8		6	111	3.1	---	2.1	199	112	107
July 21-31	3,012	73	2	5.9	35.6	7.6	.05	---	33	17	8.8		6	152	4.1	---	2.9	266	152	147
Aug. 1-10	1,212	75	1	6.1	47.0	8.4	.33	---	44	23	13		8	203	7.2	---	4.4	356	204	198
Aug. 11-20	985	77	2	6.3	47.0	6.4	.11	---	46	23	13		18	197	9.0	---	7.0	339	209	195
Aug. 21-31	796	76	3	6.6	49.8	6.0	---	---	49	25	10		19	205	8.5	---	8.4	360	225	210
Sept. 1-10	992	75	2	6.5	43.9	8.0	.12	---	45	21	8.3		30	168	8.5	---	6.6	343	199	174
Sept. 11-20	756	73	6	6.6	50.7	8.0	.11	---	50	22	14		37	185	12	---	7.3	339	215	185
Sept. 21-30	672	59	4	7.7	50.1	6.8	.06	---	50	22	16		42	184	12	.2	7.7	342	215	181
Average	1,932	---	4	6.7	35.5	7.3	0.09	---	35	15	11		31	126	8.1	---	5.7	244	149	124

1/ To convert to Micromhos at 25° C. multiply by 10.

DELAWARE RIVER BASIN—Continued

Schuylkill River at Pottstown, Pa.

Chemical analyses, in parts per million, water year October 1947 to September 1948

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Non-carbonate
Oct. 1-10, 1947	506	59	3	6.7	543	7.6	0.05	--	55	23	19		44	197	15	0.1	12	371	232	196
Oct. 11-20	445	62	5	7.2	553	6.4	.04	--	54	24	20		50	203	12	.1	10	380	233	192
Oct. 21-31	643	60	5	7.1	516	5.2	.08	--	53	22	16		54	181	12	.2	8.4	348	223	178
Nov. 1-10	3,252	53	3	6.8	255	4.4	.06	--	26	9.4	6.7		26	82	5.5	.2	3.8	164	104	82
Nov. 11-20	3,587	45	3	6.9	255	5.2	.10	--	25	10	7.2		22	84	5.8	.0	6.9	166	104	85
Nov. 21-30	2,281	42	5	6.7	299	8.2	.01	--	31	12	8.1		32	99	6.2	.1	7.5	195	127	100
Dec. 1-10	1,297	40	2	6.9	343	5.6	.05	--	36	14	10		38	112	9.5	.1	10	221	147	116
Dec. 11-20	1,164	36	2	6.9	348	5.6	.03	--	37	14	9.6		34	116	9.9	.1	9.8	224	150	122
Dec. 21-31	899	35	4	6.7	354	8.4	.01	--	37	14	11		40	118	7.5	.1	8.5	233	150	117
Jan. 1-10, 1948	1,656	37	3	6.8	305	7.8	.02	--	32	12	9.2		40	94	8.6	.1	7.5	200	129	96
Jan. 11-20	918	33	6	7.0	360	8.6	.01	--	38	14	10		42	115	9.5	.1	8.6	238	152	118
Jan. 21-31	806	32	5	6.6	420	11	.06	--	41	16	16		48	129	14	.0	11	274	168	129
Feb. 1-10	702	32	7	6.6	448	11	.07	--	44	18	16		48	147	12	.1	12	298	184	144
Feb. 11-20	2,588	36	6	6.5	342	8.8	.07	--	33	13	12		39	102	11	.0	9.9	220	136	104
Feb. 21-29	3,972	38	2	6.5	215	8.2	.04	--	22	7.3	7.0		35	56	5.4	.1	6.5	156	85	56
Mar. 1-10	3,365	38	2	6.6	231	14	.03	--	23	7.9	8.1		37	61	5.6	.1	6.9	173	90	60
Mar. 11-20	3,318	44	2	6.6	244	4.2	.09	--	24	8.7	7.5		34	69	5.5	.1	5.4	176	96	68
Mar. 21-31	3,814	51	2	6.7	238	8.0	.03	--	23	8.5	7.1		30	69	4.8	.1	5.4	176	92	68
Apr. 1-10	3,816	52	2	6.8	240	6.6	.04	--	24	9.2	3.7		24	72	5.2	.1	4.4	171	98	78
Apr. 11-20	4,818	51	2	6.9	229	7.0	.04	--	23	9.0	5.9		30	68	4.8	.1	6.1	165	94	70
Apr. 21-30	2,477	56	2	6.8	294	7.4	.03	--	29	12	7.8		35	93	6.2	.1	5.2	204	122	93
May 1-10	4,478	56	2	6.7	248	6.8	.03	--	25	9.8	5.7		31	75	4.5	.1	6.1	175	103	77
May 11-20	5,830	59	2	6.6	209	8.2	.08	--	21	8.0	4.6		28	61	3.5	.1	4.4	135	85	62
May 21-31	3,136	60	3	6.4	281	9.4	.08	--	27	11	10		36	90	4.2	.0	6.7	198	113	83
June 1-10	2,235	66	3	6.6	289	6.4	.14	--	28	12	8.6		38	91	4.8	.1	6.3	215	119	88
June 11-20	1,966	68	2	6.7	319	9.8	.07	--	31	12	14		46	102	5.5	.1	7.4	236	127	89
June 21-30	2,027	72	2	6.9	302	8.4	.06	--	30	12	8.3		46	88	5.0	.1	7.1	216	124	86
July 1-10	1,090	74	3	7.1	366	9.6	.09	--	37	16	7.6		56	108	7.2	.1	7.4	233	158	112
July 11-20	966	77	4	6.8	399	16	.09	--	39	17	13		55	126	9.0	.1	7.2	271	167	122
July 21-31	1,025	78	4	6.5	414	11	.09	--	39	17	18		50	140	9.5	.1	7.4	287	167	126
Aug. 1-10	1,351	73	3	6.4	386	10	.08	--	40	17	12		53	127	9.8	.1	6.6	267	170	126
Aug. 11-20	1,078	74	4	6.3	377	9.6	.10	--	39	16	13		57	120	9.5	.1	7.0	257	163	116
Aug. 21-31	1,495	78	3	6.6	345	10	.09	--	35	14	14		56	107	8.5	.1	6.5	237	145	99
Sept. 1-10	851	72	2	6.5	429	8.8	.09	--	43	17	14		57	135	10	.1	6.6	287	177	130
Sept. 11-20	757	71	3	6.7	452	10	.10	--	43	18	20		64	144	12	.1	7.5	308	181	129
Sept. 21-30	545	64	4	6.5	486	10	.09	--	48	19	19		65	154	14	.1	6.9	328	198	145
Average	2,075	55	3	6.7	343	8.4	0.06	--	34	14	11		42	109	8.1	0.1	7.4	233	142	108

SCHUYLKILL RIVER AT POTTSTOWN, PA.

Chemical analyses, in parts per million, water year October 1948 to September 1949

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$	
																			Total	Non-carbonate
Oct. 1-10, 1948---	641	59	6	6.6	474	12	.11	--	48	19	16		64	149	14	.1	6.5	322	198	145
Oct. 11-20-------	608	57	6	7.2	496	9.2	.04	--	51	21	14		62	160	13	.2	9.4	331	214	163
Oct. 21-31-------	542	54	5	6.7	488	8.4	.06	--	49	20	16		64	151	13	.2	9.7	320	204	152
Nov. 1-10--------	1,104	56	4	7.1	404	6.8	.04	--	39	16	14		48	128	9.8	.1	8.1	260	163	124
Nov. 11-20-------	1,013	49	3	6.3	420	10	.06	--	42	17	14		46	140	12	.2	6.3	284	175	137
Nov. 21-30-------	2,148	50	3	6.7	315	9.2	.04	--	31	12	13		33	101	12	.1	7.2	212	127	100
Dec. 1-10--------	1,686	44	4	6.3	335	10	.04	--	33	14	9.6		31	110	12	.1	4.6	228	140	115
Dec. 11-20-------	1,657	40	5	6.5	321	8.8	.06	--	32	13	9.2		32	105	8.2	.2	7.2	215	133	107
Dec. 21-31-------	4,281	34	5	7.1	287	12	.02	--	26	11	14		41	88	6	.1	8	190	110	77
Jan. 1-10, 1949---	8,209	40	3	6.8	214	8.8	.03	--	20	7.9	7.6		26	64	3.5	.1	7.1	143	82	61
Jan. 11-20-------	2,557	41	6	7.2	303	9.2	.04	--	31	13	7.0		34	98	5.9	.2	9.2	205	131	103
Jan. 21-31-------	3,723	39	8	7.1	259	8.4	.04	--	26	10	7.4		34	76	5.2	.1	9.3	161	106	78
Feb. 1-10--------	2,945	37	5	6.7	259	8.4	.12	--	26	10	9.2		40	77	4.8	.1	7.3	172	106	73
Feb. 11-20-------	2,841	41	5	6.7	253	8.6	.12	--	27	10	6.5		42	73	4.5	.1	7.0	170	108	74
Feb. 21-28-------	3,945	43	5	6.7	220	11	.04	--	22	8.8	7.5		39	61	4.2	.2	6.9	147	91	59
Mar. 1-10--------	2,258	40	4	7.2	288	8.9	.18	--	29	11	8.2		44	79	6.2	.1	10	191	118	82
Mar. 11-20-------	1,567	39	4	7.2	314	8.6	.17	--	32	12	9.4		48	89	7.1	.0	9.4	213	129	90
Mar. 21-31-------	1,444	50	5	7.1	302	8.5	.22	--	31	12	7.1		46	84	6.8	.0	9.2	196	127	89
Apr. 1-10--------	2,123	49	4	7.1	269	8.0	.18	--	28	10	6.4		40	75	5.4	.1	7.5	182	111	78
Apr. 11-20-------	2,971	50	5	6.7	221	6.8	.08	--	24	8.9	3.2		36	61	4.2	.1	5.5	154	96	67
Apr. 21-30-------	3,430	54	5	7.5	214	8.7	.10	--	21	8.1	6.8		30	63	4.2	.1	5.0	151	86	61
May 1-10---------	2,083	63	5	6.8	275	8.7	.09	--	26	11	9.4		38	83	6.0	.1	5.4	193	110	79
May 11-20--------	1,328	65	7	6.9	327	8.6	.06	--	32	13	10		42	100	8.0	.1	6.2	232	133	99
May 21-31--------	1,822	65	7	6.8	294	8.5	.09	--	29	12	11		41	94	6.1	.1	5.5	214	122	88
June 1-10--------	967	69	4	6.8	368	7.5	.04	--	38	15	11		44	120	9.8	.1	7.0	260	156	120
June 11-20-------	750	78	13	6.8	422	7.6	.04	--	41	18	15		48	144	10	.1	7.5	296	176	137
June 21-30-------	620	79	7	6.8	454	8.6	.08	--	46	19	16		50	153	13	.2	9.3	308	193	152
July 1-10--------	460	80	8	6.9	458	8.5	.08	--	46	20	15		54	156	10	.2	9.6	310	197	153
July 11-20-------	1,283	77	8	7.0	381	11	.10	--	36	16	14		56	118	8.4	.2	6.1	264	156	110
July 21-31-------	839	80	8	7.1	360	8.2	.12	--	36	15	9.0		62	98	8.8	.1	6.9	246	152	101
Aug. 1-10--------	512	79	4	7.2	448	9.3	.08	--	48	17	14		67	136	12	.1	7.6	292	190	135
Aug. 11-20-------	419	77	6	7.2	503	11	.06	--	52	22	11		68	156	14	.1	7.3	334	220	164
Aug. 21-31-------	411	75	6	7.1	505	14	.04	--	50	22	18		69	164	15	.1	7.4	339	215	159
Sept. 1-10-------	542	70	9	7.0	480	7.6	.02	--	49	20	15		54	159	14	.2	8.9	316	204	160
Sept. 11-20------	454	68	9	7.0	485	6.0	.10	--	52	22	8.2		60	158	13	.2	6.9	307	220	171
Sept. 21-30------	454	65	9	7.0	508	6.0	.10	--	52	21	14		53	172	13	.1	7.0	325	216	173
Average------	1,782	57	6	--	359	8.9	.08	--	36	15	10		47	112	9.0	.1	7.5	241	152	113

Schuylkill River at Belmont Filter Plant, Philadelphia, Pa.

Chemical analyses, in parts per million, water year October 1946 to September 1947

35816

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Kx10⁶ 2/ at 25°C.)	Silica (SiO_2)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Noncarbonata
Oct. 1-10, 1946	692	65	4	7.4	39.5	9.6	0.06	—	39	16	15		63	117	12	—	6.9	259	163	112
Oct. 11-20	708	62	6	7.6	40.8	9.2	.07	—	39	17	15		66	118	13	—	6.9	268	167	113
Oct. 21-31	1,075	59	3	7.1	38.9	8.2	.05	—	38	16	15		59	118	12	—	6.4	253	161	112
Nov. 1-10	892	62	5	7.0	36.7	8.6	.06	—	35	15	14		55	111	11	—	4.6	241	149	104
Nov. 11-20	657	51	4	6.9	43.4	8.8	.08	—	42	17	17		61	131	13	—	8.0	287	175	125
Nov. 21-30	563	48	4	6.9	46.1	8.6	.05	—	44	19	17		58	144	14	—	8.8	307	188	140
Dec. 1-10	429	41	3	6.8	46.5	8.4	.05	—	44	19	17		62	140	15	—	9.1	306	188	137
Dec. 11-20	416	43	5	6.7	49.8	9.2	.07	—	46	20	21		60	154	18	—	8.9	333	197	148
Dec. 21-31	1,572	38	7	6.9	34.1	7.8	.06	—	32	13	13		48	96	11	—	7.5	220	133	94
Jan. 1-10, 1947	1,102	36	4	6.9	33.5	10	.03	—	31	13	13		53	91	10	—	8.5	212	131	87
Jan. 11-20	2,330	36	6	6.9	31.2	9.6	.04	—	29	12	11		50	81	10	—	8.7	196	122	81
Jan. 21-31	4,305	38	4	6.8	22.8	9.0	.04	—	22	8.3	8.2		36	60	6.6	—	6.9	141	89	60
Feb. 1-10	3,668	38	3	6.9	23.0	9.4	.03	—	24	8.6	7.4		36	63	7.1	—	7.7	147	95	66
Feb. 11-20	1,387	34	2	7.0	31.2	9.4	.05	—	31	12	11		47	87	9.1	—	11	211	127	88
Feb. 21-28	900	33	3	6.8	34.2	8.6	.04	—	33	13	12		58	90	9.8	—	9.0	223	136	88
Mar. 1-10	1,854	34	4	6.9	30.9	8.6	.05	—	30	12	11		56	79	10	—	6.8	199	124	78
Mar. 11-20	5,490	41	3	6.9	21.0	7.0	.06	—	21	8.0	5.6		36	53	6.2	—	5.0	134	85	56
Mar. 21-31	2,548	43	3	6.9	25.5	7.6	.05	—	24	9.9	9.3		38	70	9.0	—	5.0	162	101	69
Apr. 1-10	3,308	48	4	7.0	25.2	8.4	.06	—	25	9.4	8.3		39	70	7.2	—	5.0	168	101	69
Apr. 11-20	2,660	56	3	6.9	25.4	8.6	.05	—	25	9.4	8.7		40	70	7.4	—	4.9	166	101	68
Apr. 21-30	2,403	53	2	7.1	25.8	7.6	.04	—	25	9.7	9.3		40	73	7.1	—	4.6	171	102	70
May 1-10	6,394	57	7	7.0	19.6	8.2	.10	—	19	7.3	7.0		34	53	4.9	—	3.4	134	77	50
May 11-20	3,101	59	5	7.1	24.3	8.6	.05	—	23	9.4	8.5		36	71	6.0	—	3.3	171	96	67
May 21-31	8,290	64	6	7.1	20.1	8.0	.12	—	20	7.5	6.2		29	59	4.5	—	3.4	133	81	57
June 1-10	4,138	65	3	7.0	26.3	8.4	.10	—	26	10	8.5		31	84	6.2	—	3.5	168	106	81
June 11-20	3,862	71	3	6.4	26.1	9.2	.14	—	25	10	9.4		32	81	7.0	—	4.5	165	104	77
June 21-30	1,563	71	3	6.5	34.0	9.0	—	—	32	14	12		43	107	8.0	—	5.6	217	137	102
July 1-10	2,992	76	5	6.5	34.7	8.6	—	—	34	15	11		43	114	8.5	—	6.4	225	147	111
July 11-20	5,558	76	2	6.6	25.0	5.6	.08	—	24	11	5.2		17	91	4.2	—	2.3	173	105	91
July 21-31	3,234	72	2	6.7	31.1	4.4	.08	—	29	14	8.1		18	118	5.5	—	2.8	210	130	115
Aug. 1-10	1,130	75	4	6.7	41.9	8.4	.05	—	37	19	16		25	162	8.9	—	4.9	286	170	150
Aug. 11-20	976	79	4	6.6	41.7	8.4	.05	—	39	18	14		34	149	10	—	6.2	283	171	143
Aug. 21-31	674	77	8	6.3	45.8	7.2	—	—	43	22	13		36	166	12	—	7.5	320	198	168
Sept. 1-10	972	77	5	6.7	40.0	7.8	.12	—	39	18	11		41	137	10	—	6.9	270	171	138
Sept. 11-20	694	78	7	6.8	43.5	8.0	.06	—	39	19	15		48	139	13	—	7.2	297	175	136
Sept. 21-30	579	69	4	7.0	44.7	8.4	.10	—	40	19	20		58	141	15	—	7.5	304	178	130
Average	1/2,332	56	4	6.9	33.5	8.3	0.06	--	32	14	11		44	102	9.5	—	6.3	221	137	101

1/ Does not include daily discharge of 298 second feet diverted by City of Philadelphia for municipal water supply.

2/ To convert to Micromhos at 25° C. multiply by 10.

Schuylkill River at Belmont Filtare, Philadalphia, Pa.

Chamical analyees, in parts per million, water yaar October 1947 to September 1948

Date of collaction	Mean dischargа (eacond-feat)	Temparatura (°F.)	Color	pH	Spacific conductanca (Micromhos at 25°C.)	Silica (SiO_2)	Iron (Fa)	Manganasa (Mn)	Calcium (Ca)	Magnasium (Mg)	Sodium (Na)	Potaesium (K)	Bicarbonate (HCO_3)	Sulfata (SO_4)	Chlorida (Cl)	Fluorida (F)	Nitrata (NO_3)	Diesolvad solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Noncarbonata
Oct. 1-10, 1947	335	61	8	7.1	515	7.2	0.04	--	49	21	21		61	163	18	0.1	11	342	209	159
Oct. 11-20	284	65	4	7.9	537	4.8	.06	--	50	22	24		61	174	20	.3	9.2	358	215	165
Oct. 21-31	502	66	5	6.9	523	5.2	.06	--	50	21	23		64	166	20	.2	8.7	346	211	159
Nov. 1-10	3,995	57	4	7.0	296	4.4	.06	--	29	11	11		41	85	9.8	.1	6.0	189	118	84
Nov. 11-20	4,655	49	4	7.1	231	6.8	.08	--	22	9.0	7.5		32	65	6.0	.1	6.9	146	92	66
Nov. 21-30	2,741	42	2	7.2	286	5.6	.06	--	28	12	8.4		40	83	8.5	.0	7.8	184	119	86
Dec. 1-10	1,514	39	2	7.0	319	8.0	.03	--	34	13	9.7		49	92	11	.0	10	198	138	98
Dec. 11-20	1,654	38	3	7.0	326	7.6	.03	--	34	13	11		52	90	12	.1	10	204	138	96
Dec. 21-31	961	34	2	7.1	334	6.0	.05	--	36	13	9.4		50	95	11	.1	10	210	143	102
Jan. 1-10, 1948	2,817	34	3	7.0	271	5.2	.06	--	32	11	4.3		44	72	11	.1	9.7	169	125	91
Jan. 11-20	1,448	34	4	6.9	311	9.8	.01	--	31	12	11		54	80	11	.2	8.8	200	127	82
Jan. 21-31	938	33	2	6.7	363	12	.06	--	35	14	14		62	93	13	.1	11	233	145	94
Feb. 1-10	732	32	3	6.8	402	12	.07	--	39	16	16		66	110	14	.1	12	259	163	109
Feb. 11-20	5,056	33	6	6.6	307	10	.08	--	28	11	14		48	78	12	.1	8.7	194	115	76
Feb. 21-29	611	37	2	7.2	199	8.6	.04	--	19	6.9	7.9		35	46	6.0	.0	9.7	123	76	47
Mar. 1-10	5,302	36	2	6.7	209	8.6	.03	--	19	7.4	9.0		37	49	6.0	.1	9.3	129	78	48
Mar. 11-20	4,487	41	3	6.8	235	9.2	.03	--	23	8.5	7.2		39	58	6.0	.1	8.7	147	92	60
Mar. 21-31	5,204	50	2	6.7	221	8.4	.19	--	22	8.3	6.6		35	58	6.0	.0	7.2	138	89	60
Apr. 1-10	5,594	51	2	7.0	224	7.8	.04	--	22	8.8	7.2		39	59	5.9	.0	6.2	146	91	59
Apr. 11-20	6,423	51	0	7.2	219	8.2	.04	--	22	8.7	6.8		40	59	5.1	.0	4.9	141	91	58
Apr. 21-30	2,938	55	1	7.3	269	7.0	.04	--	26	11	8.8		46	75	6.2	.0	5.8	174	110	72
May 1-10	6,474	57	2	7.2	237	7.6	.07	--	23	9.2	8.8		46	63	5.5	.0	4.2	155	95	58
May 11-20	9,464	56	3	6.7	195	13	.26	--	19	6.8	7.1		36	48	5.0	.1	4.9	141	143	46
May 21-31	4,364	60	2	6.8	262	11	.03	--	25	9.8	8.1		42	70	6.2	.1	5.1	189	103	68
June 1-10	3,020	66	3	7.0	266	10	.04	--	26	9.8	9.6		51	67	7.0	.1	5.4	198	105	63
June 11-20	3,160	70	3	6.7	277	9.6	.07	--	26	10	9.7		54	65	7.0	.1	6.3	213	106	62
June 21-30	3,095	71	3	6.8	253	11	.08	--	24	9.2	11		52	63	6.0	.1	6.3	190	98	55
July 1-10	1,348	79	1	7.2	317	14	.06	--	32	13	7.0		62	77	8.0	.1	7.4	204	133	02
July 11-20	1,488	76	2	6.9	323	12	.06	--	32	13	9.0		61	80	9.2	.1	8.0	220	133	83
July 21-31	1,422	78	3	7.1	334	8.4	.06	--	32	14	12		64	83	9.2	.1	13	223	137	85
Aug. 1-10	2,093	76	3	6.9	320	11	.06	--	31	13	8.0		57	79	9.8	.1	6.4	217	131	84
Aug. 11-20	1,250	74	3	6.9	345	11	.06	--	34	14	7.6		68	81	9.5	.1	6.5	240	142	87
Aug. 21-31	1,909	77	3	7.0	308	11	.08	--	31	12	6.7		62	70	8.8	.1	6.2	207	127	76
Sept. 1-10	1,002	76	3	7.1	400	12	.08	--	39	16	12		76	101	12	.1	7.0	235	163	101
Sept. 11-20	949	73	6	6.9	352	9.6	.06	--	34	14	10		70	82	12	.1	6.2	214	142	85
Sept. 21-30	453	69	4	6.8	444	10	.10	--	43	17	19		90	113	16	.1	5.1	280	177	149
Average 1/	2,899	55	3	7.0	312	8.9	0.06	--	31	12	11		52	83	9.7	0.1	7.8	204	127	84

1/ Doee not include daily discharge of 318 second feat diverted by City of Philadelphia for municipal water supply.

SCHUYLKILL RIVER AT BELMONT FILTERS, PHILADELPHIA, PA.

Chemical analyses, in parts per million, water year October 1948 to September 1949

35818

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Noncarbonate
Oct. 1-10, 1948	652	63	4	6.8	421	9.6	.08	--	40	16	19		88	104	16	.2	5.3	262	166	94
Oct. 11-20	538	60	4	6.8	447	11	.12	--	43	17	15		91	104	16	.3	5.5	287	177	103
Oct. 21-31	465	53	4	6.6	455	9.2	.04	--	44	18	16		84	115	16	.2	8.6	285	184	115
Nov. 1-10	1,056	55	5	6.7	433	7.2	.04	--	42	17	16		83	108	15	.2	8.8	273	175	107
Nov. 11-20	906	51	4	6.8	368	9.2	.04	--	37	15	12		64	100	12	.1	6.8	236	154	102
Nov. 21-30	2,508	49	4	7.1	310	8.8	.12	--	31	13	7.4		49	85	9	.1	6.6	202	131	91
Dec. 1-10	2,100	43	4	6.4	307	9.6	.04	--	30	13	9.0		51	84	10	.2	4.9	201	128	87
Dec. 11-20	2,412	41	5	6.7	313	10	.04	--	31	13	9.1		49	86	9.8	.2	8.1	203	131	91
Dec. 21-31	7,249	35	3	7.1	289	12	.04	--	28	12	9.1		50	74	9.8	.2	8.1	190	119	78
Jan. 1-10, 1949	11,820	34	10	7.0	189	8.3	.07	--	18	6.9	10		39	48	5.2	.1	7.0	123	73	41
Jan. 11-20	3,528	36	6	7.2	277	9.0	.04	--	28	11	8.2		43	77	7.0	.1	9.3	183	115	80
Jan. 21-31	6,994	37	10	6.9	232	10	.05	--	23	8.9	7.5		39	60	6.5	.1	8.2	153	94	62
Feb. 1-10	5,022	36	8	6.7	231	10	.24	--	22	9.3	9.2		46	59	6.0	.1	6.7	155	93	55
Feb. 11-20	4,579	39	5	6.8	244	11	.06	--	24	9.7	8.5		49	61	6.4	.0	6.9	162	100	60
Feb. 21-28	6,112	--	6	7.4	215	10	.03	--	21	8.1	7.1	1.7	45	51	6.0	.1	7.6	135	86	49
Mar. 1-10	3,372	41	4	7.2	215	10	.25	--	26	9.7	3.4		51	52	6.2	.1	9.0	145	105	63
Mar. 11-20	2,316	43	6	7.1	286	11	.24	--	28	11	10		56	66	10	.1	10	187	115	69
Mar. 21-31	2,569	43	6	7.1	276	12	.11	--	27	10	10		58	61	8.5	.2	8.2	180	108	61
Apr. 1-10	3,086	51	6	7.3	258	11	.12	--	26	9.9	7.3		52	60	7.0	.2	7.5	169	106	63
Apr. 11-20	3,782	52	6	6.9	235	9.4	.09	--	23	8.7	7.9		48	55	6.2	.1	5.8	169	93	54
Apr. 21-30	4,415	54	6	6.9	211	9.3	.08	--	20	7.7	8.6		42	52	5.5	.1	4.5	150	82	47
May 1-10	2,687	64	7	6.9	255	9.8	.08	--	25	9.7	9.1		48	66	6.8	.1	5.3	187	102	63
May 11-20	1,633	65	3	7.0	296	7.5	.06	--	30	12	8.9		58	75	9.0	.1	6.0	204	124	77
May 21-31	2,403	65	5	7.0	274	8.1	.08	--	28	11	7.8		54	68	8.5	.1	6.0	190	115	71
June 1-10	1,058	70	5	6.9	329	7.8	.06	--	32	14	11		60	89	9.6	.2	7.4	218	137	88
June 11-20	654	73	7	6.8	395	8.0	.04	--	38	17	13		72	105	13	.2	6.3	259	165	106
June 21-30	544	79	8	6.8	410	8.2	.06	--	39	18	10		76	100	14	.2	8.5	267	171	109
July 1-10	416	79	7	6.9	429	7.8	.04	--	41	18	17		80	114	15	.3	8.0	282	176	111
July 11-20	1,654	78	5	7.1	334	12	.10	--	32	13	13		64	85	11	.1	7.1	228	133	81
July 21-31	1,043	82	5	7.1	316	8.6	.10	--	30	12	13		73	70	11	.1	6.0	210	124	64
Aug. 1-10	555	82	7	7.3	383	9.2	.06	--	40	16	8.2		82	87	14	.2	6.7	233	166	98
Aug. 11-20	306	--	7	7.3	447	8.4	.08	--	43	18	17		89	110	18	.2	5.6	277	181	108
Aug. 21-31	337	76	8	6.9	485	8.4	.08	--	46	20	17		81	132	18	.1	6.1	303	197	131
Sept. 1-10	595	74	7	7.2	429	8.7	.04	--	42	17	14		77	109	16	.2	6.4	268	175	112
Sept. 11-20	282	70	7	7.2	444	9.8	.08	--	44	19	10		81	111	16	.2	6.5	277	188	122
Sept. 21-30	296	66	7	7.0	476	4.9	.10	--	46	22	9.8		80	122	20	.2	6.4	316	205	140
Average	1/2,488	57	6	--	331	9.3	.08	--	32	13	12		63	83	11	.2	7.0	216	133	82

1/ Does not include daily discharge of 309 second feet diverted by City of Philadelphia for municipal water supply.

LITTLE SCHUYLKILL RIVER AT DREHERSVILLE, PA.

Chemical analysis, in parts per million, water year October 1947 to September 1948

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$		Total acidity as H_2SO_4
																				Total	Non carbonate	
Dec. 5, 1947	215	--	7	4.10	533	9.2	--	0.18	--	36	24	--		0	242	2.0	0.0	1.0	404	--	--	96
Dec. 9	191	--	5	4.10	529	14	--	.21	--	39	19	--		0	236	6.0	.0	1.2	388	--	--	85
Dec. 15	141	--	6	3.90	637	12	--	.16	--	41	29	--		0	289	6.0	.0	2.0	468	--	--	104
Dec. 24	185	--	6	4.10	541	12	--	.30	--	40	17	--		0	236	4.0	.0	1.3	390	--	--	68
Dec. 30	144	--	5	4.00	593	12	--	.21	--	42	25	--		0	252	4.0	.0	.8	441	--	--	81
Jan. 9 1948	194	--	5	4.10	508	9.2	--	.18	--	32	20	--		0	215	4.0	.0	1.2	349	--	--	76
Jan. 14	162	--	15	4.05	617	12	--	.66	--	45	26	--		0	246	7.0	.0	1.8	432	--	--	79
Jan. 22	145	--	5	3.90	607	14	--	.36	--	44	25	--		0	238	11	.0	1.2	423	--	--	79
Feb. 15	250	--	7	4.10	535	11	--	.35	--	39	21	--		0	200	18	.0	2.0	359	--	--	61
Feb. 26	385	--	7	4.00	311	9.2	--	.18	--	20	14	--		0	130	4.0	.0	.8	200	--	--	43
Mar. 3	447	--	8	4.05	306	10	.6	.56	1.1	20	11	11		0	120	4.0	.0	.3	195	106	106	54
Mar. 9	326	--	7	4.05	326	10	1.3	.36	1.3	24	15	9.8		0	144	5.0	.0	.7	229	136	136	64
Mar. 16	710	--	7	4.30	242	7.5	2.0	1.2	.9	18	9.7	4.3		0	102	4.0	.1	.0	172	102	102	40
Mar. 22	642	--	5	4.15	246	9.5	4.2	.43	.6	17	10	1.6		0	105	4.0	.0	.9	170	112	112	52
Mar. 30	300	--	7	3.90	379	6.0	4.6	.17	1.6	28	19	2.8		0	174	4.0	.1	2.5	272	183	183	80
Apr. 5	498	--	10	4.00	296	9.5	3.0	.24	.5	19	11	5.3		0	114	4.0	.0	4.0	192	116	116	58
Apr. 13	474	--	1	4.00	309	4.0	4.1	.18	1.1	26	16	5.4		0	156	7.0	--	.6	205	161	161	70
Apr. 15	1240	--	1	4.25	193	4.8	3.0	.22	.4	19	10	2.1		0	99	7.0	.0	.2	122	108	108	46
Apr. 22	339	--	5	3.85	427	4.5	5.3	.26	1.6	36	21	1.5		0	201	7.0	--	.8	314	216	216	110
Apr. 28	267	--	1	3.90	467	6.5	4.9	.17	2.1	35	22	5.7		0	209	7.0	--	.4	344	215	215	110
May 3	247	--	1	4.05	448	5.0	9.1	.20	1.8	37	17	11		0	226	5.0	.0	2.0	328	221	221	95
May 14	918	--	1	4.05	273	3.5	4.1	.19	1.1	20	8.6	2.2		0	106	6.0	.0	.7	178	115	115	54
May 24	334	--	1	4.00	388	10	7.3	.15	1.0	26	16	4.9		0	171	7.0	.0	1.8	281	179	179	89
June 4	176	--	1	3.80	576	12	13	.06	2.8	40	27	4.7		0	273	7.0	.0	3.0	389	288	288	155
June 9	191	--	1	4.00	539	11	11	.10	2.9	41	23	6.1		0	260	7.0	.0	1.9	422	269	269	133
June 15	147	--	1	4.10	462	15	10	.09	2.5	32	30	12		0	272	7.0	.0	1.8	450	263	263	128
June 22	153	--	1	4.00	655	6.4	13	.13	3.5	52	33	3.6		0	335	6.0	.0	.3	508	350	350	118
June 28	143	--	1	3.90	631	9.6	16	.22	3.4	40	26	2.8		0	294	6.0	.0	.1	486	309	309	120
July 8	86	--	1	3.65	849	11	19	.14	5.2	62	43	3.3		0	440	5.0	.0	.5	664	458	458	180
July 15	78	--	1	3.65	813	10	18	.21	3.7	61	35	3.5		0	397	6.0	.0	.8	594	415	415	169
July 21	94	--	1	3.65	908	12	19	.28	5.1	62	45	2.5		0	444	6.0	.1	1.5	694	466	466	215
July 28	88	--	1	3.65	852	12	20	.45	4.9	66	41	--		0	426	4.0	.0	1.1	656	416	416	212
Aug. 8	74	--	1	3.50	898	12	19	.14	4.3	69	35	7.1		0	433	5.0	.0	4.9	627	446	446	166
Aug. 12	99	--	1	3.45	880	8.5	19	.21	4.4	70	38	3.0		0	440	8.0	.0	1.0	654	463	463	242
Aug. 19	107	--	1	3.55	837	9.0	17	4.3	4.1	66	36	4.2		0	424	5.0	.0	2.8	670	442	442	175
Aug. 27	64	--	1	3.65	958	10	23	.26	5.8	78	46	7.5		0	518	7.0	.0	1.5	792	534	534	216
Aug. 31	61	--	1	3.75	968	10	21	.41	5.7	84	52	8.2		0	547	6.0	.0	1.0	828	561	561	192
Sep. 9	78	--	1	3.70	994	8.5	18	.44	6.4	88	49	11		0	534	8.0	.0	.8	819	544	544	262
Sep. 16	57	--	1	3.70	997	10	22	.14	5.0	90	45	11		0	543	8.0	.0	.9	824	554	554	278
Sep. 24	50	--	1	3.70	986	15	29	.70	7.6	90	43	2.7		0	562	6.0	.0	1.3	831	589	589	218

APRIL 1952
COMMERCE
GRAPHS

LITTLE SCHUYLKILL RIVER AT DREHERSVILLE, PA.

Chemical analysis, in parts per million, water year October 1948 to September 1949

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$: Total	Hardness as $CaCO_3$: Non carbonate	Total acidity as H_2SO_4
Oct. 1, 1948	59	68	1	3.70	921	4.5	17	0.39	5.4	88	44	8.0		0	504	6.0	0.0	0.6	748	516	516	223
Oct. 5	50	52	1	3.80	936	7.5	21	2.9	5.7	82	45	7.3		0	516	8.0	.0	.4	828	533	533	150
Oct. 14	50	—	1	3.75	1,010	8.0	25	.11	6.9	93	48	3.1		0	567	4.0	.0	1.7	864	590	590	225
Oct. 21	52	48	1	3.85	851	7.5	19	.26	4.8	76	40	11		0	468	9.0	.0	.3	724	476	476	170
Oct. 27	52	55	1	3.70	1,040	8.0	19	.26	6.4	98	51	13		0	578	6.0	.0	1.2	884	582	582	228
Nov. 4	104	56	1	3.50	914	5.5	17	5.4	5.2	68	38	3.3		0	433	12	.0	.3	692	461	461	116
Nov. 9	115	49	1	3.95	606	9	14	.28	3.3	46	28	—		0	297	5.0	.0	.5	470	320	320	188
Nov. 17	86	49	1	3.70	765	5.0	14	.12	4.0	68	34	3.4		0	388	6.0	.0	.2	599	405	405	150
Nov. 23	283	45	1	4.25	285	7.0	3.0	.12	1.5	23	13	2.0		0	127	3.0	.0	.6	203	133	133	48
Nov. 30	198	42	1	3.90	440	5.5	6.2	.15	1.9	32	18	5.4		0	192	7.0	.0	.6	302	198	198	96
Dec. 8	169	42	1	3.90	500	6.5	12	.11	2.0	33	17	4.7		0	218	6.0	.0	4.9	302	229	229	94
Dec. 14	150	—	1	3.85	578	6.5	11	.15	2.8	42	18	15		0	263	5.0	.0	4.3	374	253	253	106
Dec. 20	162	32	3	3.65	517	5.5	10	.16	2.3	33	18	3.1		0	215	5.0	.0	4.5	304	228	228	92
Dec. 28	132	32	1	3.90	563	5.5	15	.21	3.0	46	26	8.1		0	315	8.0	.0	.2	501	317	317	106
Jan. 6, 1949	1770	41	4	3.80	246	8.5	1.1	.66	.6	13	7.4	1.2		0	76	2.0	.0	.9	125	80	80	40
Jan. 11	464	42	4	3.75	418	6.5	9.6	.25	1.9	28	17	2.9		0	198	3.0	.0	3.0	254	206	206	76
Jan. 18	255	40	3	3.70	577	12	10	.38	2.7	38	24	5.5		0	253	6.5	.0	5.6	383	266	266	99
Jan. 26	380	43	3	3.80	402	8.8	6.8	.19	2.0	25	15	2.2		0	164	3.0	.0	4.9	242	174	174	65
Feb. 2	375	34	2	3.90	371	7.0	7.2	.23	1.7	24	13	2.7		0	153	4.0	.0	5.2	231	163	163	67
Feb. 10	279	34	4	3.85	494	9.0	8.0	.29	2.3	33	20	4.1		0	206	9.0	.0	3.8	332	221	221	74
Feb. 16	370	42	1	3.95	369	8.8	7.3	.12	1.7	24	14	1.7		0	156	4.0	.0	2.8	220	167	167	68
Feb. 22	410	38	3	4.00	328	6.5	5.4	.14	1.5	22	12	2.3		0	133	4.0	.0	4.2	200	143	143	55
Mar. 4	271	39	4	4.00	447	9.0	5.9	.21	2.3	32	18	6.6		0	194	5.0	.0	2.2	304	196	196	71
Mar. 9	218	44	1	3.95	463	11	6.4	.16	2.1	33	20	4.7		0	203	5.0	.0	1.8	295	210	210	82
Mar. 15	191	37	1	3.80	522	10	9.0	.16	2.9	35	23	2.6		0	235	3.5	.0	2.2	352	246	246	92
Mar. 22	138	48	1	3.85	517	10	10	.15	2.5	34	22	2.8		0	233	3.5	.0	2.0	342	243	243	100
Mar. 28	156	59	3	3.80	566	11	13	.15	3.0	37	24	--		0	258	5.0	.0	2.7	375	277	277	96
Apr. 7	326	44	3	4.00	364	6.4	7.1	.10	1.8	24	12	4.0		0	153	3.0	.0	3.2	288	157	157	62
Apr. 11	271	54	4	4.00	351	3.8	6.8	.11	1.7	20	13	3.1		0	145	2.5	.0	2.4	256	150	150	58
Apr. 19	782	48	5	4.15	195	8.4	3.4	.07	.8	11	5.9		—	0	75	3.5	.1	3.2	123	75	75	36
Apr. 27	452	63	4	3.95	340	7.2	5.2	.14	1.6	21	12	4.4		0	138	2.0	.0	2.7	220	139	139	52
May 3	354	64	2	4.15	359	8.6	5.7	.07	1.7	24	14	3.3		0	152	2.0	.0	2.1	242	156	156	48
May 11	255	53	3	3.80	458	8.8	6.6	.11	2.3	31	17	3.7		0	189	4.0	.0	2.7	326	197	197	78
May 19	162	70	3	3.85	599	10	13	.15	3.0	42	25	2.4		0	280	3.5	.1	1.8	437	293	293	95
May 25	375	63	4	4.05	313	7.6	5.0	.18	1.5	20	11	4.5		0	129	3.0	.0	1.8	198	130	130	50
June 1	201	64	5	3.80	511	8.4	7.9	.51	2.6	35	20	7.3		0	229	2.5	.0	2.2	364	228	228	88
June 8	130	63	4	3.75	661	12	15	.84	3.4	45	26	6.3		0	313	4.0	.0	3.0	486	320	320	112
June 17	99	76	2	4.20	822	12	18	.49	4.1	56	34	13		0	390	6.5	.0	4.5	599	391	391	158
June 23	91	72	2	4.20	877	13	19	.69	4.5	61	36	10		0	413	6.0	.0	3.2	639	419	419	138
June 29	66	75	2	3.55	831	14	20	.34	4.8	54	31	4.6		0	381	5.0	.0	4.5	594	397	397	148
July 7	86	78	3	3.80	913	15	18	.84	5.2	70	35	4.9		0	426	6.0	.0	1.8	696	443	443	160
July 13	88	71	5	3.40	943	14	18	.35	4.9	69	35	12	—	0	444	7.0	.0	9.6	680	447	447	162
July 19	94	78	5	3.60	735	11	11	.23	4.1	55	28	11	—	0	337	5.0	.0	5.0	542	334	334	114
July 25	68	79	5	4.06	1,050	16	26	.39	7.0	77	44	17	—	0	557	6.0	.0	1.8	854	536	536	200
Aug. 3	59	72	7	4.05	1,100	16	19	.58	8.2	84	50	12	—	0	568	6.0	.0	.2	870	538	538	159
Aug. 10	50	78	5	3.90	1,120	16	25	1.0	6.1	82	49	13	--	0	574	7.0	.0	.2	859	565	565	218
Aug. 17	59	76	5	4.20	973	16	17	.50	5.7	95	45	14	—	0	513	8.0	.0	.2	806	482	482	185
Aug. 26	48	64	5	3.90	1,130	16	24	.96	6.3	90	51	12	--	0	581	5.0	.0	5.4	888	588	588	218
Sept. 1	81	69	6	4.05	1,020	16	23	.85	5.9	84	44	15	--	0	545	5.0	.0	1.8	832	536	536	184
Sept. 7	68	61	6	3.50	969	15	21	.31	5.3	78	34	13	—	0	471	7.0	.0	7.9	760	478	478	158
Sept. 14	78	73	5	3.80	857	12	17	.19	—	71	—	--	--	0	417	-	-	—	—	—	—	—
Sept. 20	59	63	5	3.70	926	16	24	.24	5.8	66	41	14	--	0	491	7.0	.0	3.4	756	488	488	180
Sept. 27	45	60	10	3.40	1150	12	23	.48	7.0	81	51	25	—	0	584	9.0	.0	6.4	914	575	575	222

Susquahanna Rivar at Falls, Pa.

Chemical analyses, in parts per million, watar year October 1946 to September 1947

35818

Date of collaction	Mean discharge (sacond-faat)	Tamparatura (°F.)	Color	pH	Specific conductanca (Kx10⁶ at 25°C.) 1/	Silica (SiO_2)	Iron (Fa)	Manganesa (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonata (HCO_3)	Sulfata (SO_4)	Chlorida (Cl)	Fluorida (F)	Nitrate (NO_3)	Dissolvad solids	Hardnass as $CaCO_3$ Total	Hardnass as $CaCO_3$ Noncarbonate
Oct. 1-10, 1946---	7,018	60	11	7.7	15.9	2.8	0.04	--	20	4.0	5.5		62	19	4.6	---	1.4	97	66	16
Oct. 11-20-------	6,928	56	9	7.5	16.1	1.6	.04	--	21	4.2	5.9		65	20	4.8	--	2.0	96	70	16
Oct. 21-31-------	8,745	55	10	7.4	15.1	1.2	.07	---	19	4.1	5.4		60	19	4.2	--	1.5	91	64	15
Nov. 1-10--------	6,179	52	8	7.5	16.3	1.6	.03	---	22	4.3	4.3		66	20	3.9	--	1.9	93	73	18
Nov. 11-20-------	4,896	47	8	7.8	23.0	.6	.05	---	25	4.6	5.2		76	21	5.1	--	1.7	102	81	19
Nov. 21-30-------	4,145	43	4	7.8	19.0	.8	.05	---	26	4.7	4.9		79	20	6.0	---	1.0	107	84	19
Dec. 1-10--------	3,830	36	5	7.7	19.7	.6	.05	--	26	4.7	7.1		78	21	7.0	--	1.9	111	82	18
Dec. 11-20-------	4,030	36	7	7.6	20.2	.8	.07	--	26	4.8	7.2		80	22	7.5	--	1.5	112	85	19
Dec. 21-31-------	3,760	31	7	7.7	18.9	.2	.03	--	25	4.5	6.6		75	21	7.0	--	2.6	106	81	19
Jan. 1-10, 1947---	6,855	--	4	7.2	16.5	1.4	.04	--	22	3.8	6.4		63	21	6.1	---	2.9	98	70	19
Jan. 11-20-------	14,530	--	8	7.1	13.0	3.2	.06	--	17	3.1	5.2		46	19	4.4	---	3.3	81	55	17
Jan. 21-31-------	27,350	35	---	---	---	---	Samples received in laboratory in frozen condition									---	---	---	---	---
Fab. 1-10--------	20,990	34	10	7.0	12.1	4.7	.08	--	16	3.0	3.7		42	18	3.4	---	3.0	75	52	18
Feb. 11-20-------	7,404	33	4	7.4	16.4	4.4	.04	--	22	4.0	4.3		62	19	4.6	--	4.6	101	71	21
Feb. 21-28-------	4,085	32	5	7.5	18.6	3.6	.05	--	25	4.4	5.7		74	20	5.9	--	3.9	115	80	20
Mar. 1-10--------	4,138	33	2	7.5	19.9	3.6	.05	---	27	4.5	7.1		82	21	6.5	--	3.8	118	86	19
Mar. 11-20-------	25,430	34	8	7.0	12.5	3.2	.07	--	16	3.3	3.4		44	16	4.0	---	3.2	77	53	17
Mar. 21-31-------	34,640	37	9	6.9	9.69	3.9	.08	--	12	2.4	3.2		31	15	2.6	--	2.5	62	40	14
Apr. 1-10--------	64,030	42	15	7.0	9.64	5.0	.11	---	12	2.5	1.8		31	14	2.4	---	1.0	63	40	15
Apr. 11-20-------	27,040	48	6	7.2	12.3	4.2	.03	--	17	2.7	2.8		45	16	3.0	--	2.2	75	54	17
Apr. 21-30-------	27,170	48	7	7.2	12.0	4.3	.06	---	16	2.9	3.4		44	17	2.9	---	1.8	74	52	16
May 1-10---------	40,440	52	10	7.2	10.2	3.7	.13	---	13	2.5	3.5		36	16	2.1	--	1.5	65	43	13
May 11-20-------	25,060	56	8	7.1	11.8	3.7	.06	---	16	2.9	2.9		43	17	2.8	---	1.5	74	52	17
May 21-31-------	39,330	64	14	7.2	11.0	3.0	.12	--	14	2.9	3.5		42	15	2.2	--	1.7	74	47	12
June 1-10-------	29,300	65	20	7.6	12.5	6.2	.41	---	18	3.3	1.9		51	15	2.5	--	2.1	83	58	17
June 11-20-------	15,170	68	10	7.6	14.6	3.4	.06	--	20	3.6	3.3		60	16	3.2	--	1.9	90	65	16
June 21-30-------	7,213	77	6	7.8	17.6	1.4	.31	--	25	4.1	4.5		77	17	5.1	---	1.2	108	79	16
July 1-10--------	11,670	74	7	7.0	16.7	2.2	.10	--	22	3.8	6.2		70	18	4.8	--	1.4	95	70	13
July 11-20-------	14,160	73	8	7.2	13.5	3.2	.12	---	17	3.5	5.2		54	16	4.0	--	2.0	88	57	13
July 21-31-------	14,160	72	10	7.2	13.3	3.4	.15	--	18	3.2	3.8		54	15	3 5	--	1.8	86	58	14
Aug. 1-10--------	6,692	76	6	7.5	16.2	2.4	.05	---	22	3.5	5.7		72	15	4.5	--	1.0	94	69	10
Aug. 11-20-------	5,462	78	8	6.9	17.0	1.8	---	--	23	4.5	4.9		72	17	5.4	--	2.8	101	76	17
Aug. 21-31-------	5,280	75	20	6.8	15.8	5.2	--	--	23	4.6	2.0		64	19	4.2	--	3.1	103	76	24
Sept. 1-10-------	6,637	75	14	7.0	16.9	4.0	--	---	22	4.6	6.1		67	22	5.4	--	2.0	114	74	19
Sept. 11-20------	3,051	75	7	7.5	20.2	1.0	.04	--	27	5.2	6.4		83	22	7.9	--	.7	126	89	21
Sept. 21-30------	2,546	59	3	7.0	22.9	.2	.05	--	30	5.8	7.0		96	27	8.9	--	1.2	143	99	20
Average--------	15,200	52	8	7.3	15.4	2.8	0.08	--	20	3.8	4.9		60	18	4.6	---	2.1	94	66	16

1/ To convert to micromhos at 25°, multiply by 10.

APRIL 1952
COMMERCE
GRAPHS

SUSQUEHANNA RIVER AT FALLS, PA.

Chemical analyses, in parts per million, water year October 1947 to September 1948

35818

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (micromhos at 25°C.)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$	
																		Total	Non-carbonate
Oct. 1-10, 1947	1,931	58	4	7.8	243	0.2	0.03	32	6.0	7.5		100	23	10	0.0	1.0	136	104	23
Oct. 11-20	1,609	62	5	8.2	265	--	--	--	--	--		109	24	--	--	--	--	--	--
Oct. 21-31	1,535	59	5	8.2	282	--	--	--	--	--		113	26	--	--	--	--	--	--
Nov. 1-10	3,882	54	6	8.1	251	--	--	--	--	--		100	23	--	--	--	--	--	--
Nov. 11-20	10,084	42	7	7.1	141	--	--	--	--	--		47	17	--	--	--	--	--	--
Nov. 21-30	5,628	38	6	7.4	166	--	--	--	--	--		56	19	--	--	--	--	--	--
Dec. 1-10	5,132	35	3	7.3	175	--	--	--	--	--		64	24	--	--	--	--	--	--
Dec. 11-20	7,308	33	3	7.6	159	--	--	--	--	--		58	19	--	--	--	--	--	--
Dec. 21-31	4,580	32	5	7.1	168	--	--	--	--	--		61	19	--	--	--	--	--	--
Jan. 1-10, 1948	4,550	--	2	7.2	184	4.4	.03	24	4.1	6.0		72	19	6	.0	3.1	106	77	18
Jan. 11-20	3,012	--	--	--	--	--	--	--	--	--		--	--	--	--	--	--	--	--
Jan. 21-31	2,505	--	7	7.4	221	--	--	--	--	--		84	22	--	--	--	--	--	--
Feb. 1-10	2,574	--	3	7.3	227	--	--	--	--	--		89	22	--	--	4.6	--	--	--
Feb. 11-20	10,615	--	10	7.1	137	--	--	--	--	--		40	19	--	--	5.7	--	--	--
Feb. 21-29	25,439	32	8	7.0	119	--	--	--	--	--		37	15	--	--	--	--	--	--
Mar. 1-10	13,946	32	12	7.1	139	--	--	--	--	--		48	17	--	--	--	--	--	--
Mar. 11-20	41,012	32	15	7.1	124	--	--	--	--	--		40	17	--	--	3.7	--	--	--
Mar. 21-31	84,688	--	15	7.3	109	--	--	--	--	--		36	16	--	--	2.3	--	--	--
Apr. 1-10	30,808	47	4	7.2	122	5.0	.08	16	2.9	2.9		41	17	2.8	.1	3.2	77	52	18
Apr. 11-20	41,772	47	5	7.1	108	--	--	--	--	--		36	16	--	--	2.1	--	--	--
Apr. 21-30	20,568	52	5	7.2	125	--	--	--	--	--		46	17	--	--	2.3	--	--	--
May 1-10	11,866	55	4	7.1	150	--	--	--	--	--		59	15	--	--	1.6	--	--	--
May 11-20	22,886	57	5	6.9	126	--	--	--	--	--		51	14	--	--	1.5	--	--	--
May 21-31	27,852	73	4	6.9	118	--	--	--	--	--		46	13	--	--	1.6	--	--	--
June 1-10	10,298	--	5	7.0	158	--	--	--	--	--		68	15	--	--	1.4	--	--	--
June 11-20	8,423	--	4	7.2	167	--	--	--	--	--		71	14	--	--	1.5	--	--	--
June 21-30	9,673	74	6	7.0	170	--	--	--	--	--		69	14	--	--	2.1	--	--	--
July 1-10	6,467	78	4	7.1	165	--	--	--	--	--		71	14	--	--	1.1	--	--	--
July 11-20	4,690	79	5	7.2	191	--	--	--	--	--		84	14	--	--	1.0	--	--	--
July 21-31	5,615	77	4	7.2	171	--	--	--	--	--		71	15	--	--	1.1	--	--	--
Aug. 1-10	4,151	73	4	7.5	201	--	--	--	--	--		84	17	--	--	.9	--	--	--
Aug. 11-20	5,080	74	4	7.2	177	--	--	--	--	--		77	15	--	--	1.0	--	--	--
Aug. 21-31	3,086	78	3	7.2	204	--	--	--	--	--		87	16	--	--	.8	--	--	--
Sept. 1-10	1,736	73	7	7.5	232	--	--	--	--	--		101	20	8.6	--	1.2	--	--	--
Sept. 11-20	1,364	66	3	7.4	253	--	--	--	--	--		108	20	--	--	.8	--	--	--
Sept. 21-30	1,215	58	4	7.4	277	1.6	.03	33	6.4	11		108	24	13	.2	1.4	153	136	20
Average	12,510	55	6	--	178	--	--	--	--	--		69	18	--	--	--	--	--	--

SUSQUEHANNA RIVER AT FALLS, PA.

Chemical enelyses, in parts per million, weter yeer October 1948 to September 1949

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Non carbonate
Oct. 1-10, 1948---	1,055	55	3	7.3	277	1.0	--	.02	--	33	6.3	12		108	22	16	.1	1.4	154	108	20
Oct. 11-20-------	1,480	48	2	7.6	263	--	--	--	--	--	--	--		103	24	7.6	--	2.1	--	--	--
Oct. 21-31-------	1,999	--	3	7.6	263	--	--	--	--	--	--	--		101	25	--	--	1.3	--	--	--
Nov. 1-10--------	3,927	54	6	7.5	224	--	--	--	--	--	--	--		87	22	11	--	2.4	--	--	--
Nov. 11-20-------	5,223	48	7	7.4	177	--	--	--	--	--	--	--		64	21	7.1	--	2.7	--	--	--
Nov. 21-30-------	12,150	44	8	7.2	140	--	--	--	--	--	--	--		47	19	5.2	--	2.6	--	--	--
Dec. 1-10--------	8,067	40	9	7.1	152	4.6	--	--	--	--	--	--		53	20	--	--	2.0	--	--	--
Dec. 11-20-------	7,746	All samples frozen and broken																			
Dec. 21-31-------	13,320	33	8	7.2	154	3.3	--	--	--	--	--	--		50	20	--	--	3.0	--	--	--
Jan. 1-10, 1949---	47,510	34	8	6.9	88.9	4.7	--	.02	--	10	2.3	4.4		25	17	2.2	.1	2.9	64	34	14
Jan. 11-20-------	18,480	37	10	7.1	128	5.7	--	--	--	--	--	--		42	17	--	--	3.1	--	--	--
Jan. 21-31-------	18,220	36	10	7.1	127	5.0	--	--	--	--	--	--		42	17	--	--	3.0	--	--	--
Feb. 1-10--------	11,570	33	10	7.3	143	5.1	--	--	--	--	--	--		51	18	--	--	3.0	--	--	--
Feb. 11-20-------	19,840	35	10	7.2	132	4.6	--	--	--	--	--	--		46	16	--	--	2.9	--	--	--
Feb. 21-28-------	22,050	39	10	7.1	112	4.3	--	--	--	--	--	--		36	16	--	--	2.6	--	--	--
Mar. 1-10--------	19,980	37	9	7.2	125	4.7	--	--	--	--	--	--		40	16	--	--	2.4	--	--	--
Mar. 11-20-------	13,690	39	11	7.3	139	3.9	--	--	--	--	--	--		47	16	--	--	1.7	--	--	--
Mar. 21-31-------	12,030	47	6	7.4	138	2.7	--	--	--	--	--	--		55	15	--	--	2.1	--	--	--
Apr. 1-10--------	15,540	48	8	7.2	128	2.4	--	.04	--	17	3.0	4.3		48	17	3.6	.1	2.1	82	55	15
Apr. 11-20-------	19,820	49	6	7.3	111	3.3	--	--	--	--	--	--		39	15	--	--	.9	--	--	--
Apr. 21-30-------	17,350	51	8	6.9	118	4.1	--	--	--	--	--	--		46	15	--	--	1.1	--	--	--
May 1-10---------	13,630	63	8	6.9	128	3.4	--	--	--	--	--	--		49	15	--	--	1.1	--	--	--
May 11-20--------	7,682	65	6	6.9	148	4.4	--	--	--	--	--	--		60	16	5	--	2.3	--	--	--
May 21-31--------	14,460	58	4	7.1	129	4.6	--	--	--	--	--	--		49	16	3	--	2.3	--	--	--
June 1-10--------	5,430	72	7	6.7	156	4.0	--	--	--	--	--	--		61	18	5	--	1.2	--	--	--
June 11-20-------	2,831	77	7	7.3	190	3.7	--	--	--	--	--	--		78	20	7	--	1.5	--	--	--
June 21-30-------	2,610	83	6	7.5	222	3.2	--	--	--	--	--	--		89	22	9.6	--	1.0	--	--	--
July 1-10--------	2,014	81	7	7.3	210	3.2	--	.02	--	31	4.9	4.3		92	18	7.6	.1	2.3	124	98	22
July 11-20-------	1,378	80	6	7.4	224	5.3	--	--	--	--	--	--		93	20	9.0	--	1.0	--	--	--
July 21-31-------	1,393	82	6	7.3	233	4.5	--	--	--	--	--	--		93	21	12	--	1.0	--	--	--
Aug. 1-10--------	2,402	82	6	7.3	231	3.0	--	--	--	--	--	--		91	20	11	--	1.2	--	--	--
Aug. 11-20-------	1,587	79	6	7.4	214	3.2	--	--	--	--	--	--		84	18	9.5	--	1.5	--	--	--
Aug. 21-31-------	1,505	80	6	7.3	234	3.2	--	--	--	--	--	--		90	21	12	--	1.6	--	--	--
Sept. 1-10-------	4,082	70	7	7.2	176	3.4	--	--	--	--	--	--		65	19	7.1	--	1.7	--	--	--
Sept. 11-20------	1,714	68	6	7.2	209	2.0	--	--	--	--	--	--		78	20	9.0	--	1.1	--	--	--
Sept. 21-30------	3,549	63	4	7.4	208	2.3	--	.02	--	26	4.5	8.2		84	19	8.0	.1	1.1	123	83	14
Average-----	9,841	56	7	7.2	173	3.8	--	--	--	--	--	--		65	19	--	--	1.9	--	--	--

APRIL 1952
COMMERCE
GRAPHS

Susquehanna River at Danville, Pa.

Chemical analyses, in parts per million, October 1946 to September 1947

35818

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance ($K \times 10^6$ at 25°C.) 1/	Silica (SiO_2)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Non-carbonate
Oct. 1-10, 1946---	7,615	62	--	7.3	24.6	3.4	0.14	—	26	8.9	7.7		42	72	5.1	—	1.9	158	101	67
Oct. 11-20--------	7,390	59	6	7.1	27.3	1.0	.09	--	30	10	8.1		40	88	5.0	—	2.6	177	116	83
Oct. 21-31--------	9,768	58	8	7.1	22.5	1.8	.11	—	25	7.7	6.5		44	61	4.8	--	2.3	139	94	58
Nov. 1-10---------	7,225	55	6	7.3	23.0	2.6	.05	—	26	7.7	6.2		45	63	4.2	--	2.1	140	96	60
Nov. 11-20--------	5,421	48	4	7.4	26.4	1.4	.07	--	30	9.2	7.2		55	71	5.1	--	2.8	159	113	68
Nov. 21-30--------	4,460	43	3	7.1	28.8	1.4	.12	--	33	10	7.8		56	81	5.9	--	2.3	179	123	78
Dec. 1-10--- -----	4,296	38	6	7.3	30.3	1.6	.14	--	33	10	10		55	86	7.1	—	2.0	186	123	78
Dec. 11-20--------	4,436	38	4	7.3	30.7	1.2	.19	—	34	10	11		57	85	8.0	—	3.2	188	126	79
Dec. 21-31--------	4,445	35	8	7.2	29.0	1.4	.12	—	31	10	11		49	85	7.4	--	3.3	182	118	78
Jan. 1-10, 1947---	8,593	35	4	7.0	24.1	3.0	.05	--	27	7.8	8.3		53	59	6.8	--	3.8	142	99	56
Jan. 11-20--------	15,660	35	3	7.0	15.0	1.4	.03	—	16	4.4	6.3		30	38	4.2	—	2.1	90	58	33
Jan. 21-31--------	30,350	37	8	6.8	12.2	3.4	.11	--	14	3.7	3.3		24	30	3.0	--	2.8	78	50	30
Feb. 1-10---------	25,000	32	7	6.8	14.1	5.2	.09	—	16	4.1	4.4		28	35	3.2	--	3.0	86	57	34
Feb. 11-20--------	8,934	34	5	7.0	21.8	5.8	.07	—	25	7.0	7.2		46	57	5.0	--	3.5	132	91	54
Feb. 21-28--------	5,025	--	3	7.1	26.4	4.6	.06	—	30	9.0	7.5		46	76	5.8	—	3.8	170	112	74
Mar. 1-10---------	5,014	33	4	7.3	28.5	4.0	.07	--	33	9.5	8.9		54	80	7.2	--	3.8	180	121	77
Mar. 11-20--------	29,570	33	7	6.8	18.4	3.4	.08	—	21	5.9	4.8		36	46	4.8	—	3.6	114	77	47
Mar. 21-31--------	38,430	35	10	6.7	11.9	3.8	.12	--	14	3.7	2.3		24	29	2.5	—	2.1	76	50	30
Apr. 1-10---------	69,220	36	13	6.7	11.5	4.8	.13	--	13	3.4	2.6		26	25	2.5	—	1.5	76	46	25
Apr. 11-20--------	31,130	44	4	6.9	14.9	4.4	.06	--	18	4.2	4.1		35	34	3.0	--	3.3	93	62	33
Apr. 21-30--------	29,820	44	6	7.0	15.2	4.4	.11	—	18	4.3	5.2		35	37	3.5	--	2.2	96	63	34
May 1-10----------	47,200	45	7	6.8	12.8	4.0	.10	--	15	4.1	3.4		28	33	2.2	--	1.5	86	54	31
May 11-20---------	29,050	50	8	6.9	15.2	4.2	.11	--	18	4.9	3.5		32	40	2.6	—	1.4	101	65	39
May 21-31---------	47,960	58	10	6.8	14.2	4.0	.20	--	16	4.7	4.6		30	38	2.5	—	2.0	95	59	35
June 1-10---------	33,910	62	18	7.2	16.2	4.4	.21	--	20	5.2	4.0		40	40	2.6	—	2.3	108	71	38
June 11-20--------	18,490	69	6	7.3	19.7	3.8	.16	—	24	6.5	4.8		48	49	3.4	—	2.3	124	87	47
June 21-30--------	9,088	73	4	6.6	25.5	2.6	.15	--	28	9.1	7.4		47	74	4.5	—	1.8	155	107	69
July 1-10---------	13,940	75	5	6.6	26.4	2.8	.25	--	29	9.2	7.5		48	75	5.4	—	1.9	160	110	71
July 11-20--------	20,870	74	5	6.8	18.2	4.0	.11	—	20	6.5	3.8		30	52	3.2	—	2.2	122	77	52
July 21-31--------	19,740	71	7	6.9	18.9	4.0	.17	--	21	6.9	3.1		32	53	3.2	--	2.1	128	81	55
Aug. 1-10---------	9,100	75	3	6.8	26.4	3.2	.05	—	28	9.7	8.0		32	90	4.1	—	1.9	177	110	84
Aug. 11-20--------	8,147	78	4	6.8	27.6	3.4	.07	--	28	10	9.5		31	94	4.8	--	2.1	184	111	86
Aug. 21-31--------	8,286	75	5	6.6	25.9	4.2	---	--	28	9.9	7.1		34	85	5.1	--	3.1	170	111	83
Sept. 1-10--------	7,554	76	3	6.8	26.2	3.4	--	—	29	10	5.4		43	77	5.2	--	3.0	167	113	78
Sept. 11-20-------	3,600	77	2	6.9	34.6	2.6	.04	—	36	14	9.4		34	125	5.6	--	2.3	236	147	120
Sept. 21-30-------	2,917	64	2	7.1	40.3	1.2	.10	--	40	11	11		34	146	8.0	—	2.1	281	170	142
Average	17,710	52	6	7.0	22.4	3.2	0.11	--	25	7.7	6.4		40	64	4.6	—	2.5	143	94	61

1/ To convert to micromhos at 25°, multiply by 10

Susquehanna River at Danville, Pa.
Cross-section samplee for water year ended September 30, 1947

Date	Discharge (second-feet)	Station	Time	Temperature (°F.)	pH	Specific conductance (Kx10^5 at 25°C.) 1/	Parts per million: Bicarbonate (HCO_3)	Parts per million: Sulfate (SO_4)
Oct. 4, 1946	9,300	1180	4:00pm	62	6.7	22.0	31	61
		880		--	6.8	21.4	39	50
		650		60	6.9	20.8	41	37
		465		61	7.0	20.7	--	--
		120		61	6.9	19.7	40	31
Oct. 14	6,860	1180	4:00pm	58	5.9	36.1	9	152
		880		58	6.3	35.7	16	143
		650		58	6.6	34.7	26	126
		465		58	--	34.5	--	--
		120		58	6.7	24.2	29	71
Oct. 24	6,780	1180	4:00pm	57	6.6	26.5	27	78
		880		57	6.7	25.4	34	69
		650		57	6.9	24.5	41	67
		465		58	--	24.4	--	--
		120		56	7.0	20.8	44	47
Nov. 4	8,000	1180	4:30pm	58	6.6	25.4	22	93
		880		--	6.9	24.1	40	81
		650		58	7.0	22.6	42	71
		465		56	--	21.8	--	--
		120		56	6.9	20.4	43	57
Nov. 14	5,250	1180	4:00pm	49	6.7	29.2	26	112
		880		48	6.9	29.2	39	101
		650		42	6.9	28.3	52	92
		465		47	--	27.6	--	--
		120		Water sample bottle broken in shipment				
Nov. 24	4,370	1180	2:00pm	Water sample bottle broken in shipment				
		880		39	6.8	29.0	48	114
		650		38	6.9	30.2	38	108
		465		39	--	28.0	--	--
		120		Water sample bottle broken in shipment				
Dec. 4	4,370	1180	4:30pm	33	7.0	29.4	41	93
		880		36	7.0	30.4	46	95
		650		35	7.0	29.9	52	90
		465		35	--	29.3	--	--
		120		35	7.0	24.4	52	64
Dec. 15	4,540	1180	10:00am	34	7.0	32.3	34	111
		880		34	7.1	33.1	40	111
		650		33	7.0	32.3	48	101
		465		34	--	31.6	--	--
		120		36	6.9	25.4	49	69
Dec. 25	4,720	1180	3:30pm	37	6.9	28.8	23	105
		880		34	7.0	30.4	33	106
		650		34	7.1	30.4	42	95
		465		33	--	29.3	--	--
		120		34	7.1	22.1	38	65
Jan. 4, 1947	6,390	1180	2:00pm	34	6.7	29.1	30	95
		880		34	6.5	30.9	45	89
		650		33	7.0	29.6	53	78
		465		33	--	28.8	--	--
		120		34	7.0	23.6	50	56
Jan. 15	8,640	1180	4:00pm	35	6.5	20.9	21	67
		880		35	6.7	22.5	29	70
		650		35	6.8	21.8	36	62
		465		34	--	20.6	--	--
		120		35	6.8	18.5	37	46

1/ To convert to micromhos at 25°, multiply by 10.

RAPHS
OMMERCE
APRIL 1952
PYP712.17/9
no. 243
4 24

Susquehanne River et Denville, Pe.
Cross-section samples for weter yeer ended September 30, 1947

Dete	Dis-cherge (second-feet)	Stetion	Time	Tem-pera-ture (°F.)	pH	Specific conduct-ence ($Kx10^5$ et 25°C.) 1/	Parts per million	
							Bicar-bonete (HCO_3)	Sul-fete (SO_4)
Jen. 24, 1947-------	28,600	1180	10:30em	35	6.5	12.9	17	38
		880		34	6.7	12.5	22	32
		650		35	6.6	12.1	24	28
		465		35	--	11.6	--	--
		120		35	6.6	10.5	22	23
Feb. 4----------	29,300	1180	4:00pm	33	6.4	12.7	18	36
		880		32	6.6	11.8	22	30
		650		32	6.7	11.3	24	26
		465		33	--	11.2	--	--
		120		32	6.5	10.3	22	27
Feb. 15----------	10,200	1180	2:00pm	34	6.6	21.8	26	70
		880		33	6.7	21.8	36	66
		650		33	6.8	21.1	46	57
		465		33	--	21.6	--	--
		120		30	6.9	18.5	40	47
Feb. 24----------	4,600	1180	4:00pm	31	6.7	25.4	34	88
		880		--	6.9	26.1	30	83
		830		29	7.0	26.5	40	83
		465		--	--	26.3	--	--
Mer. 4----------	4,600	1180	4:30pm	30	6.5	26.7	24	97
		880		22	7.3	27.3	38	88
		650		29	6.8	27.3	48	80
		465		--	--	26.3	--	--
Mer. 14----------	12,200	1180	4:30pm	36	5.5	12.8	6	46
		880		36	6.0	21.5	17	73
		650		37	6.5	25.5	40	78
		465		37	--	23.5	--	--
		120		35	6.2	9.97	16	25
Mer. 24----------	20,800	1180	4:00pm	35	6.3	15.9	18	55
		880		35	6.6	15.2	27	46
		650		35	6.6	14.7	30	38
		465		34	--	14.3	--	--
		120		34	6.6	13.0	30	33
Apr. 5----------	47,300	1180	1:30pm	37	6.5	12.8	26	35
		880		34	6.6	12.7	30	31
		650		34	6.6	12.4	32	30
		465		35	--	12.0	--	--
		120		34	6.6	11.4	31	26
Apr. 14----------	33,000	1180	4:00pm	44	6.5	14.8	26	42
		880		44	6.7	14.5	34	37
		650		44	6.8	14.1	36	34
		465		43	--	13.8	--	--
		120		42	6.6	12.6	32	30
Apr. 24----------	34,600	1180	4:00pm	44	6.6	14.3	26	40
		880		43	6.7	14.3	31	36
		650		42	6.8	13.9	34	33
		465		43	--	13.6	--	--
		120		42	6.8	12.2	32	28
Mey 4----------	43,800	1180	1:00pm	46	6.3	13.8	22	37
		880		46	6.5	13.9	26	36
		650		47	6.5	13.6	32	34
		465		47	--	13.2	--	--
		120		47	6.5	11.9	28	28

1/ To convert to micromhos et 25°, multiply by 10.

Susquehanna River at Danville, Pa.
Cross-section samples for water year ended September 30, 1947

Date	Discharge (second-feet)	Station	Time	Temperature (°F.)	pH	Specific conductance ($K \times 10^5$ at 25°C.) 1/	Parts per million	
							Bicarbonate (HCO_3)	Sulfate (SO_4)
May 16, 1947	36,200	1180	4:00pm	47	6.4	15.1	26	43
		880		47	6.6	14.9	32	35
		650		46	6.6	14.6	35	35
		465		46	--	14.2	--	--
		120		46	6.6	13.4	35	28
May 24	68,100	1180	4:00pm	55	6.1	12.3	21	37
		880		55	6.3	12.4	24	35
		650		57	6.4	12.1	26	32
		465	11:00am	56	--	11.8	--	--
		120		55	6.4	11.2	28	25
June 4	31,600	1180	1:00pm	63	6.1	19.6	14	69
		880		63	6.4	19.3	27	62
		650		64	6.7	18.6	36	53
		465		64	--	18.3	--	--
		120		63	6.7	15.9	34	42
June 14	13,800	1180	2:00pm	69	6.4	21.4	20	77
		880		69	6.6	22.4	34	71
		650		69	6.8	22.1	45	62
		465		70	--	22.1	--	--
		120		69	6.8	19.6	46	51
June 24	9,520	1180	2:00pm	73	6.3	25.4	20	95
		880		73	6.6	26.0	31	88
		650		73	6.8	25.6	43	76
		465		73	--	25.0	--	--
		120		73	6.7	21.4	41	60
July 4	7,580	1180	10:30am	76	6.3	29.1	24	112
		880		77	6.6	29.9	38	104
		650		75	6.7	29.3	48	98
		465		76	--	29.1	--	--
		120		74	6.8	25.5	45	78
July 14	17,300	1180	10:00am	69	4.4	17.8	0	72
		880		70	5.4	20.1	6	84
		650		71	6.3	18.5	20	65
		465		71	--	17.5	--	--
		120		70	6.4	14.6	27	49
July 24	22,900	1180	1:00pm	65	5.8	17.3	8	68
		880		66	6.4	18.6	22	63
		650		67	6.5	18.3	32	54
		465		67	--	17.7	--	--
		120		65	6.6	13.5	31	37
Aug. 4	9,740	1180	12:15pm	72	6.0	23.8	10	97
		880		72	6.5	25.3	18	95
		650		72	6.7	24.7	26	88
		465		73	--	24.2	--	--
		120		72	6.8	20.7	32	65
Aug. 14	7,180	1180	1:00pm	80	6.7	27.1	25	98
		880		80	6.9	28.3	34	100
		650		80	7.0	28.3	46	89
		465		80	--	27.9	--	--
		120		80	7.1	24.9	52	66
Aug. 24	15,800	1180	1:00pm	75	6.7	21.9	32	69
		880		75	6.8	21.2	44	57
		650		75	6.9	20.9	48	52
		465	9:30am	75	--	20.4	--	--
		120	1:00pm	75	6.9	20.3	46	52

1/ To convert to micromhos at 25°, multiply by 10.

RAPHS
OMMERCE
APRIL 1952
PYP712, 17/9
[no. 24]
#24

Susquehanna River at Danville, Pa.
Cross-section samples for water year ended September 30, 1947

Date	Discharge (second-feet)	Station	Time	Temperature (°F.)	pH	Specific conductance ($K \times 10^5$ et 25°C.) 1/	Parts per million	
							Bicarbonate (HCO_3)	Sulfate (SO_4)
Sept. 4, 1947	12,400	1180	4:00pm	76	6.5	29.8	32	100
		880		75	6.8	28.8	45	83
		650		75	6.8	27.9	54	77
		465		76	--	27.2	--	--
		120		76	6.9	27.4	52	78
Sept. 14	3,420	1200	10:00am	78	6.4	32.7	10	133
		880		78	6.6	34.0	16	136
		650		78	6.7	34.0	24	127
		465		78	--	33.8	--	--
		120		78	6.8	30.4	37	99
Sept. 24	2,950	1180	4:00pm	61	6.3	36.3	9	147
		880		61	6.5	39.3	17	160
		650		61	6.7	39.9	24	156
		465		61	--	39.9	--	--
		120		61	7.0	34.5	39	119

1/ To convert to micromhos at 25°, multiply by 10.

SUSQUERANNA RIVER AT DANVILLE, PA.

Chemical analysee, in parts per million, water year October 1947 to September 1948

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (micromhos at 25°C.)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Non-carbonate
Oct. 1-10, 1947	2,233	60	3	7.1	449	1.6	0.05	46	19	13		31	173	10	0.1	2.5	302	193	167
Oct. 11-20	1,850	60	6	7.6	495	--	--	--	--	--		24	205	--	--	--	--	--	--
Oct. 21-31	1,758	59	5	7.2	514	--	--	--	--	--		24	208	--	--	--	--	--	--
Nov. 1-10	5,186	51	6	7.7	412	--	--	--	--	--		33	151	--	--	--	--	--	--
Nov. 11-20	13,565	43	4	6.9	195	--	--	--	--	--		38	48	--	--	--	--	--	--
Nov. 21-30	7,277	39	3	7.0	243	--	--	--	--	--		33	72	--	--	--	--	--	--
Dec. 1-10	5,950	39	2	7.0	262	--	--	--	--	--		41	77	--	--	--	--	--	--
Dec. 11-20	8,383	36	3	7.0	234	--	--	--	--	--		42	62	--	--	--	--	--	--
Dec. 21-31	5,666	33	2	6.8	254	--	--	--	--	--		35	75	--	--	--	--	--	--
Jan. 1-10, 1948	5,675	34	2	6.9	275	6.0	.04	30	9.4	7.6		40	80	6.6	.0	5.7	202	114	81
Jan. 11-20	3,861	34	2	6.8	299	--	--	--	--	--		40	92	--	--	--	--	--	--
Jan. 21-31	2,791	35	3	6.8	328	--	--	--	--	--		44	102	--	--	--	--	--	--
Feb. 1-10	3,150	34	3	6.7	348	--	--	--	--	--		50	105	--	--	--	--	--	--
Feb. 11-20	10,485	35	3	6.7	302	--	--	--	--	--		45	85	--	--	--	--	--	--
Feb. 21-29	31,144	40	5	6.6	141	--	--	--	--	--		26	34	--	--	4.2	--	--	--
Mar. 1-10	17,240	38	6	6.9	174	--	--	--	--	--		32	42	--	--	3.7	--	--	--
Mar. 11-20	45,610	39	10	7.3	159	--	--	--	--	--		32	38	--	--	3.5	--	--	--
Mar. 21-31	95,991	42	20	6.9	111	--	--	--	--	--		24	24	--	--	3.7	--	--	--
Apr. 1-10	35,120	46	3	6.8	149	4.8	.06	17	4.5	4.4		36	33	3.1	.0	2.7	105	61	31
Apr. 11-20	53,140	50	6	7.1	128	--	--	--	--	--		26	31	--	--	2.4	--	--	--
Apr. 21-30	24,010	57	3	6.7	167	--	--	--	--	--		34	38	--	--	2.7	--	--	--
May 1-10	14,610	58	2	6.7	207	--	--	--	--	--		40	50	--	--	2.8	--	--	--
May 11-20	27,840	61	3	6.9	166	--	--	--	--	--		36	37	--	--	3.1	--	--	--
May 21-31	31,773	66	3	6.9	146	--	--	--	--	--		33	33	--	--	3.0	--	--	--
June 1-10	11,750	70	3	7.0	227	--	--	--	--	--		42	61	--	--	2.9	--	--	--
June 11-20	9,815	70	3	6.9	237	--	--	--	--	--		50	60	--	--	2.1	--	--	--
June 21-30	10,372	75	3	6.9	246	--	--	--	--	--		46	69	--	--	1.7	--	--	--
July 1-10	7,555	73	3	6.8	259	--	--	--	--	--		38	68	--	--	1.8	--	--	--
July 11-20	6,140	77	2	6.8	283	--	--	--	--	--		32	75	--	--	1.9	--	--	--
July 21-31	6,821	79	2	6.5	290	--	--	--	--	--		34	94	--	--	2.1	--	--	--
Aug. 1-10	4,325	75	2	6.8	341	--	--	--	--	--		29	122	--	--	1.9	--	--	--
Aug. 11-20	5,584	73	2	6.8	298	--	--	--	--	--		57	80	--	--	1.5	--	--	--
Aug. 21-31	3,444	77	2	6.8	332	--	--	--	--	--		41	109	--	--	1.7	--	--	--
Sept. 1-10	1,938	75	4	7.0	436	--	--	--	--	--		30	168	8.0	--	2.0	--	--	--
Sept. 11-20	1,565	73	3	6.7	504	--	--	--	--	--		23	203	--	--	1.0	--	--	--
Sept. 21-30	1,366	72	2	6.5	528	8.0	.06	48	23	23		26	219	9.5	.2	2.6	370	214	193
Average	14,583	55	4	--	282	--	--	--	--	--		36	90	--	--	--	--	--	--

PVP712, 1/9
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APRIL 1952
OMMERCE
APHS

Suequehanna River at Danville, Pa.
Croes-section samples for water year ended September 30, 1948

Date	Discharge (second-feet)	Station	Time	Temperature (°F.)	pH	Specific conductance (Micromhos at 25°C.)	Parts per million: Bicarbonate (HCO_3)	Parts per million: Sulfate (SO_4)
Oct. 4, 1947	2,260	1180	3:30pm	60	6.5	399	10	166
		880		60	6.2	437	14	183
		650		60	6.7	449	20	183
		465		60	---	447	--	---
		120		60	6.9	390	44	135
Oct. 14	1,850	1180	4:00pm	63	6.2	458	10	196
		880		63	6.3	464	9	202
		650		63	6.6	489	12	213
		465	11:00am	62	---	---	--	---
		120	4:00pm	63	6.6	430	36	161
Oct. 24	1,670	1080	4:00pm	60	6.4	456	16	188
		880		60	6.4	476	12	200
		650	12:00m	63	6.6	486	22	204
		465	4:00pm	60	---	499	--	---
		120	12:00m	58	6.8	453	40	171
Nov. 5	4,040	1180	4:00pm	52	5.9	171	7	51
		880		52	6.2	306	10	113
		650		52	6.4	400	20	153
		465		53	---	438	--	---
		120		52	6.3	235	26	65
Nov. 14	19,500	1180	4:00pm	43	5.9	171	10	60
		880		43	6.2	176	22	52
		650		43	6.4	171	34	44
		465		42	---	172	--	---
		120		43	6.5	146	30	31
Nov. 24	5,620	1180	12:00m	42	6.2	238	2	95
		880		42	6.3	259	8	102
		650		42	7.3	279	38	88
		465		40	---	248	--	---
		120		42	6.7	196	32	55
Dec. 4	5,150	1180	4:00pm	42	5.5	237	3	91
		880		42	6.3	268	4	102
		650		40	6.7	275	27	95
		465		40	---	270	--	---
		120		42	6.7	211	28	62
Dec. 14	7,330	1180	3:00pm	36	6.6	235	26	77
		880		36	6.6	239	33	72
		650		35	6.9	230	40	65
		465		36	---	233	--	---
		120		36	7.0	201	40	51
Dec. 24	6,980	1180	2:00pm	35	6.4	225	14	81
		880		33	6.5	230	21	78
		650		34	6.8	225	30	68
		465		33	---	225	--	---
		120		33	6.7	192	42	53
Jan. 4, 1948	5,400	1180	2:00pm	--	---	---	--	---
		880		32	6.1	241	20	81
		650		32	6.3	260	33	80
		465	4:00pm	32	---	261	--	---
		120	2:00pm	32	6.3	164	27	44
Jan. 14	5,190	1180	5:00pm	32	6.0	262	14	99
		880		32	6.3	292	25	102
		650		32	6.4	298	39	95
		465	4:00pm	32	---	299	--	---
		120	5:00pm	32	6.4	225	32	65
Jan. 25	6,480	1180	3:00pm	35	6.0	317	27	109
		880		35	6.2	340	34	113
		650		35	6.2	346	38	118
		465		34	---	341	--	---
		300		36	6.3	325	45	102
Feb. 4	7,730	1200	4:00pm	32	6.1	318	26	110
		850		32	6.4	340	37	111
		465		34	---	335	--	---
Feb. 24	26,300	1180	4:00pm	40	6.0	137	14	40
		880		40	6.2	135	19	35
		650		40	6.3	132	21	32
		465		40	---	130	--	---
		120		42	6.4	120	22	26

Susquehanna River at Danville, Pa.--Continued

Cross-section samples for water year ended September 30, 1948--Continued

Date	Discharge (second-feet)	Station	Time	Temperature (°F.)	pH	Specific conductance (Micromhos at 25°C.)	Parts per million: Bicarbonate (HCO_3)	Parts per million: Sulfate (SO_4)
Mar. 4, 1948	18,100	1180	3:00pm	36	6.2	158	13	58
	18,000	880	4:00pm	36	7.3	159	21	53
		650		36	6.8	155	26	49
		465		38	---	153	--	--
		120		36	6.6	134	25	41
Mar. 14	10,100	1180	2:30pm	38	6.3	203	21	63
		880		38	6.4	210	26	58
		650		38	6.6	207	32	54
		465		38	---	202	--	--
		120		38	6.6	177	34	42
Mar. 24	178,000	1180	12:00m	46	6.4	91.8	20	17
		880		46	6.2	88.0	18	14
		650		46	6.2	87.5	18	20
		465		46	---	85.8	--	--
		120		46	6.2	87.3	20	16
Apr. 4	53,200	1180	1:00pm	47	6.7	126	20	26
		880		47	6.7	126	27	16
		650		47	6.7	124	28	16
		465		47	---	122	--	--
		120		47	6.7	112	27	12
Apr. 14	51,000	1180	4:30pm	50	6.5	135	19	26
		880		50	7.0	157	36	31
		650		50	6.7	149	34	22
		465		50	---	141	--	--
		120		50	6.7	106	26	14
Apr. 24	26,400	1180	4:00pm	56	6.5	174	22	45
		880		56	6.5	172	30	42
		650		56	6.6	168	31	35
		465		57	---	165	--	--
		120		56	6.6	145	30	33
May 4	13,200	1180	4:00pm	56	6.6	209	19	65
		880		56	6.6	221	31	63
		650		58	6.8	219	41	55
		465		--	---	208	--	--
		120		60	6.7	195	38	49
May 14	18,800	1180	4:30pm	60	6.4	156	13	49
		880		60	6.6	189	29	53
		650		58	6.8	195	38	53
		465	3:00pm	67	---	190	--	--
		120	4:30pm	60	6.7	131	28	28
May 24	23,700	1180	4:00pm	64	6.5	165	18	50
		880		64	6.6	164	28	42
		650		64	6.6	159	33	38
		465		64	---	156	--	--
		120		64	6.7	139	34	340
June 4	10,400	1180	2:00pm	70	6.3	213	19	71
		880		70	6.4	223	29	68
		650		71	6.5	218	36	61
		465		70	---	213	--	--
		120		70	6.6	199	36	53
June 14	9,990	1180	12:00m	70	6.7	455	22	133
		880		70	6.7	232	36	70
		650		70	6.8	225	46	57
		465		70	---	226	--	--
		120		70	6.7	211	43	55
June 24	6,790	1180	4:00pm	76	6.8	319	79	74
		880		75	6.6	263	28	94
		650		76	6.8	294	38	93
		465		75	---	295	--	--
		120		75	6.9	257	43	74
July 14	10,300	1180	1:00pm	75	4.8	189	--	65
		880		75	5.3	195	6	66
		650		75	6.1	216	20	63
		465		76	---	238	--	--
		120		75	6.5	210	34	52

RAPHS
OMMERCE
APRIL 1952
PYP712, 17/9
Eno. 243
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Susquehanna River at Danville, Pa.--Continued
Cross-section samples for water year ended September 30, 1948--Continued

Date	Discharge (second-feet)	Station	Time	Temperature (°F.)	pH	Specific conductance (Micromhos at 25°C.)	Parts per million	
							Bicarbonate (HCO_3)	Sulfate (SO_4)
July 24, 1948------	7,210	1180	1:00pm	78	6.1	229	10	---
		880		78	6.4	291	15	---
		650		78	6.5	302	19	114
		465		78	---	318	--	---
		120		78	6.9	291	35	97
Sept. 4----------	1,940	1180	3:00pm	75	6.0	375	18	153
		880		75	6.1	398	19	165
		650		75	6.1	411	20	170
		465		75	---	422	--	---
		120		75	6.8	372	47	133
Sept. 14----------	1,620	1180	4:30pm	74	6.1	450	12	196
		880		74	5.9	468	13	210
		650		74	5.9	480	10	214
		465		74	---	520	--	---
		120		74	6.2	454	36	181
Sept. 25----------	1,400	1180	2:00pm	71	6.4	422	38	161
		880		71	6.2	476	18	204
		650		71	6.1	498	16	218
		465		71	---	526	--	---
		120		71	6.1	470	43	184

SUSQUEHANNA RIVER AT DANVILLE, PA.

Chemical analyses, in parts per million, water yeer October 1948 to September 1949

Data of collection	Mean discharge (second feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Non carbonate
Oct. 1-10, 1948---	1,285	--	3	6.5	542	3.2	--	.06	--	48	23	23		26	215	11	.2	2.8	372	214	193
Oct. 11-20--------	1,670	58	2	7.1	515	--	--	--	--	--	--	--		31	205	7.1	--	2.4	--	--	--
Oct. 21-31--------	2,201	--	2	7.3	425	--	--	--	--	--	--	--		54	135	--	--	2.2	--	--	--
Nov. 1-10---------	4,686	58	5	7.0	394	--	--	--	--	--	--	--		42	132	11	--	2.0	--	--	--
Nov. 11-20--------	6,624	51	5	6.9	252	--	--	--	--	--	--	--		48	66	7.8	--	2.8	--	--	--
Nov. 21-30--------	14,320	45	4	7.2	181	--	--	--	--	--	--	--		36	43	5.0	--	3.0	--	--	--
Dec. 1-10---------	9,726	45	4	6.9	206	--	--	--	--	--	--	--		35	54	5.2	--	2.6	--	--	--
Dec. 11-20--------	9,725	42	5	6.9	220	--	--	--	--	--	--	--		33	55	11	--	2.4	--	--	--
Dec. 21-31--------	15,590	36	5	6.1	221	3.1	--	--	--	--	--	--		28	65	--	--	2.0	--	--	--
Jan. 1-10, 1949---	61,720	34	10	7.4	116	5.1	--	.07	--	12	3.3	2.2		14	29	3.0	.1	2.7	72	44	32
Jan. 11-20--------	23,420	36	3	6.1	166	5.2	--	--	--	--	--	--		28	45	--	--	2.6	--	--	--
Jan. 21-31--------	22,350	--	5	6.2	169	5.0	--	--	--	--	--	--		32	41	--	--	2.7	--	--	--
Feb. 1-10---------	14,940	36	3	6.2	193	4.9	--	--	--	--	--	--		34	51	--	--	2.7	--	--	--
Feb. 11-20--------	23,070	37	3	6.3	185	4.1	--	--	--	--	--	--		34	47	--	--	2.3	--	--	--
Feb. 21-28--------	28,390	39	7	6.7	140	5.0	--	--	--	--	--	--		29	33	3.4	--	2.2	--	--	--
Mar. 1-10---------	24,540	37	6	6.6	156	4.2	--	--	--	--	--	--		32	38	4.1	--	2.4	--	--	--
Mar. 11-20--------	17,200	41	4	7.2	166	3.7	--	--	--	--	--	--		36	41	--	--	1.5	--	--	--
Mar. 21-31--------	13,590	48	4	7.1	190	2.8	--	--	--	--	--	--		43	44	--	--	2.3	--	--	--
Apr. 1-10---------	18,360	50	5	6.9	172	1.9	--	.20	--	20	5.3	4.8		40	40	4.0	.1	2.2	120	72	39
Apr. 11-20--------	26,240	--	6	7.1	140	4.1	--	--	--	--	--	--		29	32	--	--	2.0	--	--	--
Apr. 21-30--------	22,850	50	4	7.1	155	3.5	--	--	--	--	--	--		33	37	--	--	1.1	--	--	--
May 1-10----------	18,010	61	3	7.0	172	2.9	--	--	--	--	--	--		37	42	--	--	1.4	--	--	--
May 11-20---------	9,927	67	4	7.0	221	3.7	--	--	--	--	--	--		35	64	--	--	1.6	--	--	--
May 21-31---------	18,220	66	6	7.0	179	4.9	--	--	--	--	--	--		37	44	--	--	1.5	--	--	--
June 1-10---------	7,039	68	7	7.0	248	4.2	--	--	--	--	--	--		36	78	--	--	1.1	--	--	--
June 11-20--------	3,506	74	4	6.9	343	4.6	--	--	--	--	--	--		31	127	8	--	1.8	--	--	--
June 21-30--------	2,961	81	3	6.9	406	5.0	--	--	--	--	--	--		28	157	9	--	1.8	--	--	--
July 1-10---------	2,535	82	4	7.0	399	4.6	--	.06	--	41	16	11		40	140	9	.1	1.4	259	168	135
July 11-20--------	1,839	82	6	6.7	449	6.5	--	--	--	--	--	--		22	181	8	--	2.0	--	--	--
July 21-31--------	1,577	--	5	6.7	496	5.9	--	--	---	--	--	--		15	211	10	--	2.1	--	--	--
Aug. 1-10---------	2,727	84	6	7.0	412	6.1	--	--	--	--	--	--		35	150	12	--	1.7	--	--	--
Aug. 11-20--------	2,047	83	6	7.0	413	5.3	--	--	--	--	--	--		20	164	10	--	2.0	--	--	--
Aug. 21-31--------	1,783	82	4	7.1	466	2.4	--	--	--	--	--	--		11	195	8.8	--	1.8	--	--	--
Sept. 1-10--------	4,690	76	5	6.7	304	4.5	--	--	--	--	--	--		37	94	8.0	--	2.8	--	--	--
Sept. 11-20-------	2,022	73	5	6.7	400	4.8	--	--	--	--	--	--		14	165	6.0	--	3.0	--	--	--
Sept. 21-30-------	3,726	74	8	7.3	360	2.4	--	.08	--	36	13	8.6		44	106	9.5	.1	2.3	236	143	107
Average------	12,250	58	5	6.9	283	4.3	--	--	--	--	--	--		32	94	--	--	2.1	--	--	--

PA.PL12, 1/9
F. no. 241
APRIL 1952
OMMERCE
APHS

Susquehanna River at Danville, Pa.
Cross-section samples for water year ended September 30, 1949

Date	Discharge (second-feet)	Station	Time	Temperature (°F.)	pH	Specific conductance (Micromhos at 25°C.)	Parts per million	
							Bicarbonate (HCO_3)	Sulfate (SO_4)
Oct. 5, 1948	1,230	1180	5:00pm	--	6.5	424	67	133
		880		--	6.3	498	18	213
		650		--	6.3	517	16	224
		465		--	---	537	--	---
		120		55	6.0	477	38	185
Oct. 14	1,440	1180	4:00pm	--	6.2	434	24	144
		880		--	6.1	511	7	217
		650		--	6.2	537	14	223
		465		56	---	550	--	---
		120		57	6.0	496	37	185
Oct. 25	2,530	1180	1:00pm	--	6.5	354	27	120
		880		--	6.5	388	36	130
		650		--	6.4	394	46	124
		465		54	---	384	--	---
		120		58	6.1	349	52	99
Nov. 4	1,680	1180	5:00pm	56	5.5	369	19	144
		880		56	5.5	418	16	167
		650		56	5.5	433	19	171
		465		56	---	448	--	---
		120		56	6.1	380	48	125
Nov. 14	7,020	1180	1:00pm	52	5.4	228	15	80
		880		52	5.5	244	27	78
		650		52	5.9	242	50	67
		465		52	---	237	--	---
		120		52	5.8	187	35	47
Nov. 24	16,800	1180	2:00pm	46	5.4	184	16	60
		880		46	5.5	189	29	53
		650		46	5.6	185	33	53
		465		46	---	183	--	---
		120		46	5.6	148	28	41
Dec. 4	8,690	1180	1:00pm	48	5.4	206	14	75
		880		48	5.6	211	25	73
		650		48	5.6	207	32	67
		465		48	---	206	--	---
		120		48	5.7	169	34	47
Dec. 14	7,770	1180	5:00pm	43	4.9	213	7	81
		880		43	5.3	223	17	77
		650		43	5.2	243	17	68
		465		42	---	218	--	---
		120		43	5.6	221	26	47
Dec. 24	8,180	1180	2:00pm	36	5.2	204	11	75
		880		36	5.8	218	22	74
		650		36	5.7	221	27	69
		465		35	---	209	--	--
		120		36	5.6	169	26	47
Jan. 4, 1949	37,600	1180	4:00pm	34	5.3	134	9	48
		880		34	5.3	124	12	39
		650		34	5.4	118	16	34
		465		33	---	115	--	--
		120		34	5.3	104	15	30
Jan. 14	24,600	1180	1:00pm	36	5.4	165	11	58
		880		36	5.5	160	19	51
		650		36	5.6	155	24	42
		465		36	---	144	--	--
		120		36	5.8	135	24	33
Jan. 24	17,200	1180	4:00pm	37	5.6	180	18	57
		880		37	5.6	176	28	51
		650		37	5.7	171	29	45
		465		38	---	168	--	--
		120		37	5.9	152	31	37
Feb. 4	15,200	1180	4:00pm	34	6.4	187	10	69
		880	5:00pm	35	6.7	184	28	52
		650		34	6.6	192	21	59
		465		34	---	186	--	--
		120		34	6.8	153	28	37

Susquehanna River at Danville, Pa.--Continued
Cross-section samples for water year ended September 30, 1949--Continued

Date	Discharge (second-feet)	Station	Time	Temperature (°F.)	pH	Specific conductance (Micromhos at 25°C.)	Parts per million: Bicarbonate (HCO_3)	Parts per million: Sulfate (SO_4)
Feb. 14, 1949	9,420	1180	4:00pm	40	6.4	213	16	72
		880		38	6.4	245	33	79
		650		36	6.7	241	34	74
		465		37	---	222	--	--
		120		36	6.8	195	35	52
Feb. 24	30,600	1180	4:00pm	40	6.5	143	17	43
		880		42	6.7	146	26	39
		650		41	6.7	157	30	33
		465		41	---	141	--	--
		120		40	6.9	123	27	29
Mar. 4	17,300	1180	4:00pm	37	7.2	167	22	53
		880		37	7.1	169	32	50
		650		37	7.0	166	34	43
		465		37	---	171	--	--
		120		37	6.8	149	30	34
Mar. 14	18,100	1180	4:00pm	42	6.7	166	22	51
		880		42	6.7	167	29	46
		650		42	6.8	162	33	44
		465		42	---	164	--	--
		120		42	6.7	143	31	35
Mar. 24	10,700	1180	4:30pm	46	6.4	211	21	69
		880		46	6.6	215	35	63
		650		46	6.8	211	42	59
		465		46	---	212	--	--
		120		46	6.6	180	36	48
Apr. 4	15,800	1180	4:30pm	50	6.0	181	28	53
		880		50	6.3	184	38	48
		650		50	6.3	184	44	46
		465		50	---	181	--	--
		120		50	6.5	158	38	35
Apr. 14	26,900	1180	5:00pm	52	5.8	158	15	50
		880		53	6.0	174	28	46
		650		53	5.9	172	32	45
		465		53	---	153	--	--
		120		52	7.0	87.9	14	20
Apr. 24	24,500	1180	3:00pm	52	5.8	162	14	53
		880		52	6.1	163	26	49
		650		52	6.2	160	28	41
		465		52	---	153	--	--
		120		52	6.1	118	23	34
May 4	16,800	1180	4:30pm	65	6.5	184	27	59
		880		65	6.7	184	31	56
		650		65	6.5	181	35	51
		465		65	---	179	--	--
		120		65	6.4	130	24	34
May 14	10,100	1180	1:00pm	65	6.0	209	11	77
		880		65	6.5	211	24	69
		650		65	6.5	205	28	63
		465	4:00pm	65	---	206	--	--
		120	1:00pm	65	7.4	172	27	51
May 24	18,400	1180	4:00pm	65	6.4	174	23	53
		880		65	6.6	175	31	49
		650		65	6.7	172	37	44
		465		65	---	175	--	--
		120		65	6.9	155	37	35
June 4	7,750	1180	11:00am	70	6.1	226	8	84
		880		70	6.4	231	23	77
		650		70	6.6	225	28	72
		465		70	---	226	--	--
		120		Water sample bottle broken in shipment				
June 15	3,770	1180	7:00pm	78	6.0	325	8	132
		880		78	6.2	342	15	136
		650		78	6.4	345	19	134
		465		--	---	---	--	---
		120		78	6.6	343	27	127

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Susquehanna River at Danville, Pa.--Continued
Cross-section samples for water year ended September 30, 1949--Continued

Date	Discharge (second-feet)	Station	Time	Temperature (°F.)	pH	Specific conductance (Micromhos at 25°C.)	Parts per million: Bicarbonate (HCO_3)	Parts per million: Sulfate (SO_4)
June 24, 1949	2,360	1180	3:00pm	86	6.0	396	7	168
		880		83	3.3	420	10	181
		650		83	6.4	428	13	182
		465		83	---	431	---	---
		120		83	6.6	373	28	136
July 4	2,590	1180	9:00am	83	6.4	368	34	133
		880		83	6.5	380	35	139
		650		83	6.4	387	41	137
		465		83	---	385	---	---
		120		83	6.6	348	55	107
July 14	1,860	1180	5:00pm	82	5.8	390	10	165
		880		82	5.9	407	11	170
		650		82	6.1	418	15	169
		465		82	---	420	---	---
		120		82	6.4	370	35	130
July 24	1,450	1180	6:00pm	80	6.2	459	26	179
		880		80	5.9	488	7	215
		650		80	6.2	501	9	218
		465		---	---	---	---	---
		120		80	6.2	471	42	191
Aug. 4	4,050	1180	6:00pm	84	6.2	434	6	179
		880		88	6.1	441	14	175
		650		83	6.1	438	19	168
		465		83	---	499	---	---
		120		83	6.8	403	40	138
Aug. 14	1,790	1180?	7:00pm	82	5.7	400	6	162
		880		83	5.9	377	10	149
		650?		84	6.2	311	17	111
		465	9:00am	82	---	353	---	---
		120	7:00pm	83	6.2	394	18	153
Aug. 24	1,380	1180	7:00pm	---	---	---	---	---
		880		83	5.2	469	3	200
		650		83	5.5	482	3	205
		465		83	---	473	---	---
		120		83	6.4	427	24	164
Sept. 4	5,550	1180	5:00pm	75	6.3	289	33	82
		880		75	6.6	279	52	73
		650		75	6.6	279	58	65
		465		75	---	279	---	---
		120		75	6.7	261	61	58
Sept. 17	2,060	1180	2:30pm	75	4.7	454	1	196
		880		75	4.10	469	---	196
		650		75	5.1	441	3	188
		465		75	6.1	427	11	178
		120		75	6.4	353	22	130

Susquehanna River at Harrisburg, Pa.
Cross-section samples for water year ended September 30, 1947

Date	Dis. charge (second-feet)	Sampling point: Channel	Sampling point: station	Temperature (°F.)	Color	pH	Specific conductance (K x 10^5 at 25°C.) 1/	Parts per million: Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Total hardness as $CaCO_3$
Oct. 5, 1946	16,900	East	120	59	2	6.4	28.4	25	106	6	2.9	124
			600	60	3	6.8	20.1	41	58	5	3.0	72
			1180	59	4	6.7	18.2	33	50	4	2.4	72
		West	600	69	4	6.7	16.9	24	51	4	2.0	62
			1100	59	5	7.0	24.0	66	51	6	2.6	90
			1320	59	5	7.4	25.8	123	21	4	6.6	104
Oct. 15	22,200	East	120	54	2	6.8	38.4	4	170	5	3.1	171
			600	55	3	6.8	26.6	30	92	6	3.2	99
			1180	55	10	6.8	22.3	76	46	6	4.1	84
		West	600	55	15	7.0	23.2	83	35	6	4.5	90
			1100	54	7	7.3	26.2	126	26	4	6.8	104
			1320	54	5	7.3	29.3	146	25	4	9.0	117
Oct. 25	20,700	East	120	55	2	6.7	29.9	25	112	6	3.2	117
			600	55	2	7.1	21.3	38	63	5	2.1	80
			1180	55	2	6.5	13.1	8	47	3	1.4	57
		West	600	55	2	6.5	12.7	20	38	2	1.9	54
			1100	55	5	7.3	23.5	83	45	6	3.8	96
			1320	56	5	7.5	22.6	102	21	3	7.2	102
Nov. 5	20,500	East	120	54	2	6.5	28.5	12	116	4	2.9	114
			600	54	2	7.3	21.6	40	61	4	2.0	80
			1180	53	2	7.1	12.3	17	37	2	1.2	50
		West	600	52	2	7.0	12.5	26	35	3	2.0	57
			1100	52	7	7.4	21.1	77	32	2	3.6	90
			1320	51	5	7.9	26.3	126	21	4	7.0	112
Nov. 15	12,300	East	120	44	4	6.3	33.5	14	129	7	3.3	144
			600	45	3	7.0	24.6	38	78	6	2.4	111
			1180	45	4	6.9	15.3	19	46	4	1.8	68
		West	600	44	5	7.3	16.2	36	39	6	2.2	60
			1100	44	5	7.5	24.2	90	39	6	7.0	93
			1320	43	4	7.5	26.7	130	21	5	5.1	114
Nov. 25	10,200	East	120	--	3	6.5	37.5	14	158	7	4.3	118
			600	41	4	6.9	29.4	45	92	7	3.1	114
			1180	42	4	7.0	19.6	22	59	5	2.2	70
		West	600	41	3	7.1	19.1	35	58	6	2.5	75
			1100	41	5	7.5	28.3	98	49	8	4.9	99
			1320	41	3	7.5	30.1	148	26	6	9.0	135
Dec. 16	11,400	East	120	33	3	6.3	38.8	26	143	9	3.2	144
			600	33	2	7.2	23.0	40	60	6	2.4	98
			1180	34	4	6.6	16.5	20	44	6	2.2	62
		West	600	32	3	6.8	17.0	28	41	5	1.7	63
			1100	32	4	6.8	24.5	71	42	8	4.2	88
			1320	32	5	7.1	31.0	138	27	7	7.2	128
Jan. 15, 1947	21,500	East	120	33	2	6.3	23.1	16	79	5	3.5	87
			600	34	1	6.5	19.8	30	56	1	2.8	72
			1180	34	2	6.3	12.0	8	38	1	1.7	38
		West	600	33	3	6.6	12.4	19	35	1	2.3	42
			1100	33	1	7.1	17.8	55	30	1	3.3	68
			1320	34	2	7.5	22.2	101	20	2	7.4	93
Jan. 27	53,600	East	120	35	4	6.7	18.0	19	60	3	4.2	60
			600	35	4	6.3	12.8	22	32	2	2.3	52
			1180	36	4	6.1	9.66	13	25	4	2.7	34
		West	600	35	4	6.2	8.55	8	26	2	2.5	32
			1100	37	5	7.0	13.9	44	22	3	3.2	58
			1320	40	4	7.4	18.3	74	19	3	6.8	78

1/ To convert to micromhos at 25°, multiply by 10.

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Suequehanna River at Herrieburg, Pa.--Continued
Croee-section samples for water year ended September 30, 1947--Continued

Date	Dis-charge (second-feet)	Sampling point		Tem-pera-ture (°F.)	Color	pH	Specific conduct-ance ($Kx10^5$ 1/ at 25°C.)	Parts per million				
		Channel	etation					Bicar-bonate (HCO_3)	Sul-fate (SO_4)	Chlo-ride (Cl)	Ni-trate (NO_3)	Total hard-neee as $CaCO_3$
Feb. 3, 1947-----	91,600	Eaat	120	34	4	6.4	14.1	16	48	4	3.8	54
			600	34	3	6.4	12.7	29	33	2	4.6	52
			1180	34	2	6.4	11.1	23	31	3	2.0	46
		West	600	35	2	6.0	8.74	9	34	3	1.5	42
			1100	36	1	6.7	12.2	32	30	2	4.4	45
			1320	35	3	7.3	16.8	64	23	3	7.1	69
Mar. 17----------	112,000	East	140	34	3	5.7	14.1	14	48	4	3.3	54
			300	34	5	5.9	13.8	--	--	--	--	--
			500	34	5	6.1	13.1	--	--	--	--	--
			690	33	5	6.2	12.6	28	31	2	1.6	51
			920	33	4	6.2	12.3	--	--	--	--	--
			1220	33	6	6.1	11.8	24	29	3	3.2	46
		Weet	300	33	6	6.1	11.6	--	--	--	--	--
			600	33	5	6.2	12.6	30	37	3	2.2	51
			900	33	5	6.1	11.4	--	--	--	--	--
			1100	34	5	6.6	12.5	32	28	1	3.7	54
			1300	33	7	6.6	13.4	44	27	1	4.5	60
Mar. 26----------	65,400	East	120	36	8	5.5	20.4	7	79	1	1.6	80
			600	35	6	6.4	15.6	26	47	1	1.8	64
			1180	36	5	6.1	13.5	26	36	2	2.3	57
		Weet	600	36	6	6.0	11.1	16	35	2	2.0	48
			1100	37	6	6.6	13.7	42	25	2	3.6	62
			1320	37	7	6.7	15.2	55	23	3	3.4	68
Apr. 8----------	194,000	East	120	43	9	5.9	11.0	20	34	3	2.7	42
			600	44	22	6.4	9.35	29	31	1	.6	40
			1180	45	22	6.4	9.85	34	34	2	.2	36
		Weet	600	44	17	6.0	8.66	16	32	1	2.4	36
			1100	45	10	6.2	8.11	16	28	1	1.8	38
			1320	45	7	6.3	9.48	22	26	1	2.4	39
Apr. 15----------	50,500	East	120	54	5	6.3	18.4	20	67	2	3.0	74
			600	53	5	6.5	15.0	32	45	2	1.8	57
			1180	53	5	6.6	13.9	33	40	2	2.1	54
		Weet	600	54	3	6.5	10.5	18	37	2	2.0	45
			1100	--	--	--	--	--	--	--	--	--
			1320	57	3	7.1	18.3	74	33	3	2.9	74
May 1----------	61,500	East	120	55	5	6.1	16.5	14	59	2	2.6	69
			600	54	8	6.5	14.1	33	36	3	2.2	62
			1180	54	6	6.2	9.85	15	30	2	1.7	42
		Weat	600	54	2	5.9	8.41	10	26	2	1.4	30
			1100	57	3	6.6	12.6	38	26	1	2.2	57
			1320	61	5	7.1	22.5	109	17	3	5.5	94

1/ To convert to micromhos at 25°, multiply by 10.

Susquehanna River at Harrisburg, Pa.--Continued
Cross-section samples for water year ended September 30, 1947--Continued

Date	Discharge (second-feet)	Sampling point: Channel	Sampling point: station	Temperature (°F.)	Color	pH	Specific conductance (Kx10^5 at 25°C.) 1/	Parts per million: Bicarbonate (HCO_3)	Parts per million: Sulfate (SO_4)	Parts per million: Chloride (Cl)	Parts per million: Nitrate (NO_3)	Parts per million: Total hardness as $CaCO_3$
May 13, 1947	53,600	East	120	56	5	6.0	17.4	10	65	2	2.1	74
			600	55	5	6.6	13.5	28	36	2	1.9	58
			1180	55	5	6.7	11.6	26	30	2	1.6	51
		West	600	55	3	6.5	9.58	14	28	2	1.4	42
			1100	57	5	6.5	11.4	26	30	3	2.0	51
			1320	60	5	7.1	20.5	91	23	3	5.2	92
June 5	66,100	East	120	62	6	5.6	25.8	4	116	2	2.0	96
			600	63	7	6.2	18.4	85	64	3	2.2	74
			1180	62	5	6.8	14.8	84	50	1	1.7	56
		West	600	63	5	6.6	11.0	18	40	2	1.4	42
			1100	62	6	7.0	11.5	28	40	1	1.3	46
			1320	63	8	7.1	17.1	78	26	1	6.0	74
June 16	42,000	East	120	64	4	5.7	25.2	4	109	1	3.4	93
			600	66	5	6.9	20.8	42	68	2	2.6	78
			1180	66	3	6.9	13.8	24	49	2	1.9	52
		West	600	65	4	6.8	10.6	18	37	1	1.5	40
			1100	65	6	7.1	14.1	50	35	2	3.1	56
			1320	63	10	7.3	20.2	96	24	1	7.0	86
June 26	17,900	East	120	69	4	5.3	35.2	4	154	2	2.1	146
			600	--	--	--	--	--	--	--	--	--
			1180	--	--	--	--	--	--	--	--	--
		West	600	71	2	6.2	13.1	24	35	2	1.4	54
			1100	71	2	7.1	17.7	54	34	2	1.2	72
			1320	69	3	7.8	29.2	148	17	3	7.0	138
July 8	15,300	East	120	70	2	5.2	36.6	2	163	2	1.8	162
			600	71	2	6.2	29.0	32	98	3	1.7	126
			1180	71	3	6.2	20.6	32	58	2	1.6	81
		West	600	70	3	6.3	17.4	36	49	2	1.4	66
			1100	70	4	7.2	18.0	50	37	3	1.0	78
			1320	69	3	7.4	27.2	128	26	4	4.8	120
July 15	31,700	East	120	74	4	4.5	32.1	0	146	1	2.4	117
			600	75	2	6.1	18.7	10	75	2	2.3	66
			1180	76	2	6.5	14.6	21	47	2	2.0	54
		West	600	76	3	6.2	13.6	17	41	2	2.1	51
			1100	77	3	6.9	17.5	42	44	3	2.0	62
			1300	77	4	7.0	24.7	100	37	4	5.8	105

1/ To convert to micromhos at 25°, multiply by 10.

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Susquehanna River at Harrisburg, Pa.--Continued
Cross-section samples for water year ended September 30, 1947--Continued

Date	Dis-charge (second-feet)	Sampling point		Tem-pera-ture (°F.)	Color	pH	Specific conduct-ance (Kx10^5 1/ at 25°C.)	Parts per million				
		Channel	Station					Bicar-bonate (HCO_3)	Sul-fate (SO_4)	Chlo-ride (Cl)	Ni-trate (NO_3)	Total hard-ness as $CaCO_3$
July 24, 1947	43,300	East	120	63	3	4.8	19.7	4	79	1	2.4	69
			600	68	2	6.0	20.9	8	79	1	2.3	78
			1180	68	4	6.5	14.5	22	52	2	2.5	62
		West	600	60	3	6.2	11.9	16	40	1	2.2	46
			1100	69	4	6.8	15.6	41	32	2	2.1	68
			1320	66	5	7.0	22.0	98	35	3	8.8	93
Aug. 5	17,700	East	120	72	2	4.40	43.1	0	201	1	1.8	188
			600	71	2	6.6	23.3	22	89	2	2.2	93
			1180	71	2	6.8	17.1	32	51	4	1.8	78
		West	600	71	2	6.9	14.0	25	46	3	1.6	84
			1100	73	2	7.0	21.6	68	48	5	1.6	87
			1320	70	2	7.0	29.4	142	30	6	4.2	129
Aug. 25	25,100	East	120	66	2	4.6	45.2	2	212	2	1.8	188
			600	79	2	6.4	27.3	24	103	3	2.9	111
			1180	78	3	7.0	20.3	26	64	3	3.1	84
		West	600	79	3	6.6	17.7	26	59	2	2.4	88
			1100	79	3	6.9	21.2	58	48	4	3.6	90
			1320	78	3	7.2	26.3	106	41	6	8.0	114
Sept. 5	23,700	East	120	--	1	5.4	41.8	0	185	4	2.6	192
			600	74	1	6.7	27.9	32	100	4	3.3	114
			1180	74	2	6.4	17.1	18	60	3	2.2	63
		West	600	73	2	6.6	16.1	19	53	4	2.0	80
			1100	72	3	7.1	19.7	68	34	5	5.5	87
			1320	72	3	7.4	26.3	120	25	4	9.2	117
Sept. 16	8,400	East	120	72	1	4.7	50.4	0	233	5	2.0	210
			600	72	0	6.4	33.0	28	124	5	2.4	141
			1180	70	2	6.7	19.5	28	61	5	1.6	81
		West	600	72	2	6.9	19.4	45	52	5	1.4	78
			1100	71	3	7.3	23.7	76	42	8	.4	87
			1320	70	3	7.6	28.5	140	21	5	8.0	123
Sept. 26	6,920	East	120	56	0	4.5	55.9	8	263	7	1.8	226
			600	55	0	6.7	38.6	26	149	8	1.4	182
			1180	55	1	6.7	22.4	28	73	7	1.8	102
		West	600	56	1	6.9	20.7	36	62	5	1.8	87
			1100	57	1	7.5	27.4	90	52	8	1.0	128
			1320	58	1	7.9	33.5	172	19	7	9.8	162

1/ To convert to micromhos at 25°, multiply by 10.

Susquehanna River at Harrisburg, Pa.
Cross-section samples for water year ended September 30, 1948

Date	Discharge (second-feet)	Sampling point: Channel	Sampling point: Station	Temperature (°F.)	Color	pH	Specific conductance (Micromhoe at 25°C.)	Parts per million: Bicarbonate (HCO_3)	Parts per million: Sulfate (SO_4)	Parts per million: Chloride (Cl)	Parts per million: Nitrate (NO_3)	Total hardness as $CaCO_3$
1947												
Oct. 6,----	4,860	East	120	60	0	4.5	618	4	291	7	2.0	252
			600	60	1	6.6	425	36	169	9	2.1	185
			1180	60	1	6.7	255	36	79	8	1.6	108
		West	600	60	1	7.0	264	60	65	9	1.5	102
			1100	60	1	7.3	322	104	56	11	1.0	138
			1300	61	0	7.3	304	156	20	7	10	135
Oct. 15,---	4,000	East	120	60	0	4.5	665	4	312	11	2.6	261
			600	59	1	6.2	480	22	198	9	2.9	189
			1180	59	1	6.9	295	44	88	7	2.1	108
		West	600	60	1	7.2	311	74	76	11	1.8	126
			1100	60	1	7.5	362	112	65	13	1.4	144
			1300	60	2	7.6	330	154	23	9	8.6	150
Oct. 24,---	3,950	East	120	56	0	4.7	669	4	316	9	2.2	279
			600	54	3	6.3	511	18	216	11	2.9	213
			1180	55	2	7.0	328	56	94	10	2.2	129
		West	600	54	2	7.2	336	86	76	12	2.1	126
			1100	55	3	7.5	349	120	58	13	1.2	135
			1300	55	2	7.6	339	154	30	8	5.6	150
Nov. 6,----	10,300	East	120	52	1	4.40	543	4	248	6	3.6	240
			600	52	3	6.4	433	22	169	11	3.6	183
			1180	51	3	6.7	263	46	72	8	4.3	120
		West	600	52	5	7.0	261	92	42	8	4.6	123
			1100	52	12	6.9	167	53	26	5	8.6	74
			1320	51	12	7.2	264	124	25	5	12	135
Nov. 14,---	38,000	East	120	41	2	4.5	255	4	99	7	5.2	111
			600	41	1	6.5	209	36	53	7	4.7	93
			1180	40	1	6.3	171	14	51	5	5.8	69
		West	600	41	2	6.1	173	14	52	7	6.0	69
			1100	41	4	6.7	185	46	38	5	8.0	76
			1320	41	3	6.8	170	49	21	6	12	70
Nov. 25,---	17,800	East	120	39	2	4.6	319	4	129	3	4.1	129
			600	38	2	6.4	243	26	76	3	3.9	102
			1180	38	1	6.5	161	21	44	3	3.2	63
		West	600	39	2	7.1	238	70	45	5	3.9	102
			1100	40	7	7.5	241	108	20	5	8.8	111
			1320	41	3	7.1	252	110	19	3	10	117
Dec. 4,----	14,400	East	120	37	1	4.7	362	6	149	6	4.2	153
			600	36	2	6.5	247	32	71	7	4.0	108
			1180	36	1	6.6	135	14	39	4	3.0	56
		West	600	36	1	6.8	146	26	33	3	3.4	60
			1100	36	2	7.1	228	70	42	7	4.4	96
			1320	36	1	7.6	291	134	17	3	13	135
1948												
Feb. 27,----	52,000	East	120	36	1	5.6	194	6	75	4	2.8	76
			600	36	3	6.1	144	22	45	5	2.8	63
			1180	35	3	6.1	111	10	38	3	3.4	45
		West	600	35	6	6.0	104	13	34	3	2.9	42
			1100	37	7	6.4	139	40	26	4	4.8	57
			1320	34	6	6.5	142	50	35	4	6.1	62
Mar. 9,-----	35,000	East	120	36	1	5.9	219	10	75	3	4.1	84
			600	35	2	6.4	180	26	55	6	5.0	72
			1180	35	2	6.4	116	8	41	4	1.9	46
		West	600	36	3	6.7	121	20	34	4	2.8	52
			1100	38	4	6.7	151	48	33	4	5.9	64
			1320	38	4	7.3	229	126	28	2	10	106
Mar. 18,---	165,000	East	120	41	4	6.2	170	9	57	4	1.5	66
			600	40	1	6.5	192	44	48	5	1.5	80
			1180	40	2	6.3	150	28	44	4	1.4	57
		West	600	40	4	6.1	108	16	32	2	2.3	42
			1100	41	8	6.6	142	38	35	4	4.6	63
			1320	42	8	6.7	167	52	31	4	6.9	74
Mar. 30,----	73,300	East	120	44	3	6.6	188	25	67	5	3.2	81
			600	44	3	6.6	150	32	39	4	3.8	60
			1180	44	4	6.9	133	30	36	4	2.5	56
		West	600	46	3	6.5	107	16	41	4	2.6	50
			1100	46	6	6.9	138	43	33	4	4.4	66
			1320	47	6	7.1	191	78	33	4	7.2	90

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Susquehanna River at Harrisburg, Pa.--Continued
Cross-section samples for water year ended September 30, 1948--Continued

Date	Discharge (second-feet)	Sampling point Channel	Sampling point Station	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Parts per million: Bicarbonate (HCO_3)	Parts per million: Sulfate (SO_4)	Parts per million: Chlorids (Cl)	Parts per million: Nitrats (NO_3)	Parts per million: Total hardness as $CaCO_3$
1948												
Apr. 9,----	56,700	East	120	47	3	6.5	205	14	79	6	3.1	87
			600	47	5	6.5	171	27	56	4	2.4	69
			1180	47	3	6.4	120	20	34	4	2.4	50
		West	600	48	5	6.6	103	19	33	3	2.6	45
			1100	49	5	7.1	142	48	31	3	3.9	64
			1370	50	4	6.7	149	45	31	6	3.6	69
Apr. 20,----	89,100	East	120	50	3	6.5	176	12	64	7	3.1	78
			600	50	4	6.5	143	17	47	2	3.3	64
			1180	49	5	6.2	111	10	42	4	2.8	51
		West	600	51	4	6.3	106	8	42	3	2.6	50
			1100	52	3	7.0	135	42	28	4	4.0	68
			1320	53	3	7.2	167	64	26	4	5.4	84
Apr. 30,----	53,600	East	120	52	4	6.3	257	10	90	15	2.2	108
			600	52	4	6.8	187	28	58	3	2.4	78
			1220	52	3	6.3	118	10	58	5	2.0	63
		West	600	50	3	6.8	131	30	38	4	2.5	66
			1100	50	3	7.2	163	50	30	4	3.8	57
			1320	49	3	7.4	210	98	29	12	6.8	93
May 10,----	67,600	East	120	55	3	6.4	199	12	78	3	2.8	93
			600	55	6	6.4	133	20	44	4	2.2	60
			1180	55	8	6.2	93.9	10	38	3	2.6	44
		West	600	55	8	6.7	104	26	37	2	2.0	51
			1100	55	7	7.0	127	44	38	2	3.3	64
			1320	56	4	7.1	189	82	33	4	6.8	92
May 20,----	78,700	East	120	55	2	6.6	179	9	68	4	2.5	74
			600	55	3	6.5	148	26	44	4	2.3	69
			1180	55	6	6.6	107	24	32	3	1.7	51
		West	600	56	4	6.4	96.8	14	36	2	1.8	42
			1100	56	4	6.8	129	40	30	4	3.8	66
			1320	56	2	7.1	181	84	25	4	5.4	98
June 1,----	39,300	East	120	65	3	5.9	233	12	100	6	2.4	116
			600	65	4	6.7	183	30	58	4	2.7	87
			1180	66	4	8.7	134	28	42	4	2.0	69
		West	600	66	8	6.9	124	31	40	4	1.6	58
			1100	66	4	7.0	163	60	53	4	2.6	90
			1320	66	6	7.1	200	96	46	4	5.2	120
June 10,----	21,300	East	120	65	1	4.9	353	2	200	3	2.1	136
			600	65	1	6.6	259	38	89	5	2.2	117
			1180	68	2	6.5	188	32	59	4	2.4	84
		West	600	65	2	6.8	161	36	44	3	2.2	78
			1100	66	2	7.1	201	78	36	5	2.2	90
			1320	66	2	7.4	303	146	22	5	6.4	141
June 21,----	30,500	East	120	71	1	6.1	316	14	132	4	2.2	129
			600	73	1	6.6	219	36	67	4	2.1	102
			1180	78	4	6.7	177	64	31	4	2.7	87
		West	600	68	5	6.7	166	56	30	3	3.3	72
			1100	66	6	6.6	141	49	25	2	3.3	66
			1320	65	6	6.8	183	82	21	2	5.0	87
July 1,----	26,000	East	120	75	1	6.2	238	24	84	4	2.8	105
			600	75	1	6.5	172	40	44	4	3.5	78
			1180	75	1	6.5	155	38	39	4	3.3	72
		West	600	75	2	6.5	141	26	49	2	2.0	60
			1100	75	3	6.9	184	60	39	3	3.7	75
			1320	75	2	7.0	257	118	21	3	5.8	123
July 9,----	12,800	East	120	72	1	6.0	358	10	165	4	4.0	156
			600	74	1	6.5	270	38	99	5	2.2	108
			1180	73	1	6.4	187	26	69	4	2.0	84
		West	600	73	1	6.9	194	44	55	5	2.3	87
			1100	73	1	7.2	236	80	40	5	2.8	99
			1300	72	1	7.2	288	140	28	4	7.0	132
July 19,----	11,600	East	120	76	3	4.6	374	0	143	4.0	2.0	162
			600	76	4	6.5	250	16	82	5.0	2.0	102
			1180	76	4	7.5	194	26	60	4.5	1.5	78
		West	600	76	2	7.5	195	10	55	4.5	2.0	81
			1100	77	4	7.3	261	90	42	6.8	1.5	104
			1320	76	4	7.2	321	158	22	7.0	8.0	162

Susquehanna River at Harrisburg, Pa.-Continued
Cross-section samples for water year ended September 30, 1948-Continued

Date	Discharge (second-feet)	Sampling point: Channel	Sampling point: Station	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Parts per million: Bicarbonate (HCO_3)	Parts per million: Sulfate (SO_4)	Parts per million: Chloride (Cl)	Parts per million: Nitrate (NO_3)	Parts per million: Total hardness as $CaCO_3$
1948												
Aug. 2,----	9,370	East	120	75	3	5.6	420	2	173	7.8	1.2	188
			600	76	4	6.5	297	30	98	7.0	1.2	126
			1180	76	4	7.6	163	19	49	3.8	0.8	63
		West	600	76	4	6.3	154	20	44	3.8	1.6	63
			1100	77	4	7.1	277	84	56	7.2	1.0	114
			1320	75	4	7.2	334	160	21	8.5	7.0	154
Aug. 20,---	10,300	East	120	70	10	6.2	350	12	142	---	2.0	175
			600	71	10	6.8	276	50	81	7	1.5	141
			1180	71	15	6.6	235	46	64	5	0.6	125
		West	600	71	12	6.7	218	36	60	8	1.5	94
			1100	72	10	7.1	285	86	58	8	1.0	135
			1320	71	10	7.1	292	138	19	7	7.0	148
Sept. 1,---	5,100	East	120	66	10	6.0	491	7	214	7	1.2	240
			600	66	10	6.6	374	34	139	6	1.0	183
			1180	65	10	6.8	270	40	87	8	1.6	128
		West	600	65	10	6.9	261	42	72	7	1.2	127
			1100	64	10	7.1	314	90	68	9	0.6	146
			1380	63	10	7.2	278	124	23	10	5.0	162

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Susquehanna River at Harrisburg, Pa.
Cross-section samples for water year ended September 30, 1949

Date	Dis-charge (second-feet)	Sampling point		Tem-pera-ture (°F.)	Color	pH	Specific conduct-ance (Micromhos at 25°C.)	Parts per million				
		Channel	Station					Bicar-bonate (HCO_3)	Sul-fate (SO_4)	Chlo-ride (Cl)	Ni-trate (NO_3)	Total hard-ness as $CaCO_3$
1948												
Oct. 8,——	4,650	East	120	64	15	4.9	539	6	239	9	2.5	254
			600	64	10	6.5	473	22	181	11	1.5	210
			1180	64	10	6.8	363	55	113	9	2.0	154
		West	600	64	5	7.0	353	85	84	14	1.2	160
			1100	64	10	7.1	346	102	64	15	1.0	143
			1320	64	10	7.2	312	144	26	10	6.5	150
Oct. 20,——	9,080	East	120	47	10	4.8	469	3	192	18	4.1	222
			600	47	10	6.4	501	17	196	11	2.5	219
			1180	47	10	6.7	320	44	86	10	2.0	141
		West	600	47	15	7.0	314	80	68	10	2.5	131
			1100	47	20	7.1	266	106	30	8	6.5	134
			1320	47	15	7.1	281	128	23	5	7.5	140
Oct. 29,——	5,320	East	120	49	4	5.9	457	15	181	12	3.0	210
			600	49	3	6.4	398	36	134	8.5	2.5	183
			1180	50	4	6.5	313	30	101	8.5	2.2	136
		West	600	49	3	6.6	310	54	88	8.0	2.5	138
			1100	49	4	6.9	313	99	55	9.2	1.7	138
			1320	50	4	7.1	275	124	21	6.5	6.5	118
Nov. 15,——	16,200	East	120	45	4	5.9	292	6	112	6.5	4.0	117
			600	45	3	6.7	254	46	69	7.5	3.0	105
			1180	44	4	6.3	182	23	51	5.2	2.5	74
		West	600	44	4	7.0	178	26	50	4.5	2.5	82
			1100	45	3	6.7	245	66	50	6.5	4.0	104
			1320	44	3	7.0	273	122	23	5.0	7.5	129
Nov. 30,——	28,800	East	120	40	12	5.6	226	4	87	4.5	2.5	---
			600	40	12	6.3	179	30	49	4.5	1.5	69
			1180	40	13	6.3	124	16	36	3.2	1.7	51
		West	600	40	4	6.5	126	24	30	3.2	2.0	62
			1100	40	11	6.8	176	52	32	3.5	3.5	78
			1320	40	20	7.0	236	100	24	4.0	7.0	111
Dec. 14,——	24,600	East	120	40	12	5.9	266	8	104	3.2	2.0	108
			600	39	9	6.5	201	36	53	5.0	2.2	87
			1180	39	12	6.4	126	13	34	2.5	1.5	54
		West	600	38	11	7.2	135	26	34	3.2	1.5	78
			1100	39	12	6.9	177	55	29	5.0	3.5	81
			1320	40	11	7.1	231	98	21	5.0	5.8	111
1949												
Feb. 8,——	35,400	East	120	34	11	5.4	249	6	99	5.5	1.8	111
			600	33	10	6.6	179	28	49	4.8	3.0	78
			1180	34	11	6.1	133	10	54	3.5	1.8	63
		West	600	34	9	6.9	140	32	34	3.8	2.5	68
			1100	35	10	7.0	157	53	26	3.2	3.5	75
			1320	35	10	7.2	244	111	21	4.5	7.5	120
Mar. 5,——	39,300	East	120	36	6	6.0	213	4	78	3.2	2.5	93
			600	35	12	6.6	150	28	41	3.5	2.2	70
			1180	35	9	6.4	112	13	33	2.0	2.2	48
		West	600	35	10	6.3	112	17	31	2.0	1.5	45
			1100	35	10	6.7	165	52	28	4.0	3.4	75
			1320	36	15	7.2	253	117	21	3.8	7.8	116
Mar. 15,——	36,700	East	120	36	11	6.1	220	10	83	3.2	2.2	95
			600	36	11	6.6	164	26	46	4.0	2.2	72
			1180	36	10	6.5	128	18	36	4.0	1.8	57
		West	600	--	--	---	---	--	--	---	---	---
			1100	37	11	6.8	176	52	32	5.5	2.5	75
			1320	37	11	7.7	273	132	21	5.0	6.8	132
Mar. 25,——	25,100	East	120	49	12	6.0	281	7	110	4.0	1.8	120
			600	48	15	6.4	215	32	60	5.0	2.5	90
			1180	47	12	6.6	154	19	46	3.5	2.0	68
		West	600	48	12	6.6	145	23	40	3.2	1.8	57
			1100	49	10	7.0	198	68	30	5.0	2.2	90
			1320	49	10	7.3	290	142	17	4.8	7.8	---
Apr. 5,——	43,300	East	120	48	1	6.3	206	20	57	4	2.3	81
			600	48	1	6.6	163	37	49	4	2.5	68
			1180	48	1	6.0	101	8	32	1	1.5	39
		West	600	47	1	6.2	104	12	32	1	0.9	42
			1100	50	2	6.7	163	50	29	2	3.1	66
			1320	50	2	7.0	206	83	24	3	4.5	87

Susquehanna River at Harrisburg, Pa.-Continued
Cross-section samples for water year ended September 30, 1949-Continued

Date	Discharge (second-feet)	Sampling point: Channel	Sampling point: Station	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Parts per million: Bicarbonate (HCO_3)	Parts per million: Sulfate (SO_4)	Parts per million: Chloride (Cl)	Parts per million: Nitrate (NO_3)	Total hardness as $CaCO_3$
1949												
Apr. 14,---	52,500	East	120	55	2	6.0	175	11	61	2	1.9	66
			600	52	2	6.5	146	27	39	2	1.8	60
			1180	52	2	6.3	98.3	11	30	2	1.4	38
		West	600	53	2	6.6	101	18	25	1	1.3	40
			1100	54	2	6.7	131	44	20	2	2.5	57
			1320	55	4	7.0	256	120	19	3	8.7	108
Apr. 26,---	50,500	East	120	53	2	5.9	177	8	67	2	2.0	72
			600	54	2	6.5	146	29	39	2	2.6	58
			1180	53	2	6.4	109	16	29	2	2.7	42
		West	600	53	2	6.4	99.3	14	25	2	1.8	38
			1100	55	3	6.4	149	49	24	3	2.8	63
			1320	55	3	7.1	198	89	26	4	4.8	90
May 10,---	34,200	East	120	63	2	6.0	205	12	82	2	1.7	82
			600	64	3	6.5	155	28	47	2	2.7	63
			1180	64	3	6.5	129	23	49	2	2.4	50
		West	600	64	3	6.5	109	18	31	1	1.3	46
			1100	65	4	7.0	155	50	28	3	2.2	68
			1320	63	4	7.1	240	107	33	2	5.7	112
May 23,---	49,000	East	120	63	2	6.1	228	14	84	2	2.0	92
			600	62	2	6.3	175	27	49	5	3.2	69
			1180	61	2	6.2	112	12	36	2	1.9	42
		West	600	60	2	6.0	106	11	40	2	1.8	40
			1100	61	2	6.6	140	33	29	2	2.4	56
			1320	61	3	7.1	236	104	22	4	6.0	108
June 7,---	14,100	East	120	72	1	5.1	328	3	134	4	1.7	136
			600	73	1	6.8	234	29	82	3	2.0	96
			1180	71	1	6.7	137	16	40	2	1.2	52
		West	600	72	1	6.6	124	20	38	2	1.4	48
			1100	72	2	7.1	198	67	31	5	1.2	82
			1320	72	2	7.3	249	114	17	6	4.6	112
June 20,---	9,080	East	120	76	1	4.8	443	1	205	5	0.8	190
			600	77	1	6.4	299	12	114	5	1.5	118
			1180	77	-	7.2	180	30	49	4	1.5	72
		West	600	77	-	7.3	261	74	45	8	1.5	100
			1100	76	4	7.1	252	108	36	6	2.5	112
			1320	76	4	7.5	330	175	19	6	6.0	160
July 7,---	6,150	East	120	78	1	6.3	459	12	204	6	0.5	198
			600	77	1	6.8	339	38	117	8	1.0	138
			1180	77	4	7.6	223	35	77	5	1.5	90
		West	600	73	4	7.1	242	66	76	6	1.0	96
			1100	73	4	7.8	257	102	39	7	1.6	120
			1320	73	4	7.4	233	107	23	5	2.7	102
July 20,---	17,800	East	120	81	2	5.9	410	6	175	8	1.5	176
			600	76	7	7.6	168	44	40	5	4.0	76
			1180	75	12	6.8	165	52	24	5	4.2	68
		West	600	76	12	6.9	164	51	27	5	4.0	70
			1100	78	8	6.7	154	53	20	4	3.8	64
			1320	78	10	7.1	221	98	21	2	6.9	98
Aug. 1,---	5,560	East	120	76	2	4.7	564	2	263	7	1.3	242
			600	76	2	6.2	460	14	187	10	1.6	192
			1180	76	2	7.2	264	46	77	6	1.5	114
		West	600	76	3	7.3	213	66	40	4	1.5	86
			1100	76	4	7.2	211	61	25	6	1.7	88
			1320	79	2	7.4	198	86	18	10	2.0	84
Aug. 30,---	5,100	East	120	72	1	5.1	424	3	187	10	2.0	174
			600	72	1	6.2	424	12	180	10	1.8	174
			1180	72	2	6.9	323	44	102	11	1.3	126
		West	600	74	4	7.2	282	78	66	10	0.6	112
			1100	75	4	7.2	263	91	43	12	1.3	106
			1320	75	5	7.1	205	82	27	11	1.5	84
Sept. 11,---	5,100	East	120	65	4	5.2	417	2	198	8	1.8	168
			600	64	3	6.4	320	18	133	8	1.2	140
			1180	64	6	6.6	261	40	82	10	1.2	104
		West	600	64	4	6.8	267	68	74	9	1.3	110
			1100	64	3	7.2	234	96	60	9	0.8	116
			1320	64	4	7.2	256	114	24	11	3.3	114

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Susquehanna River at Harrisburg, Pa.-Continued
Cross-section samples for water year ended September 30, 1949-Continued

Date	Discharge (second-feet)	Sampling point Channel	Station	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Parts per million: Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Total hardness as $CaCO_3$
1949 Sept. 27,—	7,690	East	120	60	2	4.5	533	1	244	12	2.4	220
			600	62	3	6.2	404	16	158	10	1.9	170
			1180	62	3	6.8	258	27	81	7	1.9	114
		West	300	62	3	7.1	241	36	71	7	1.4	98
			1100	62	2	7.4	328	87	78	13	1.5	128
			1300	61	3	7.4	306	140	28	12	7.2	140

LACKAWANNA RIVER AT OLD FORGE, PA.

Chemical analyses, in parts per million, water year October 1947 to September 1948

Date of collection	Mean discharge (second feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Non carbonate	Total acidity as H_2SO_4
Oct. 1-10, 1947---	154	62	4	3.4	1530	18	14	2.9	2.0	122	83	38		0	798	5.2	.2	.1	1180	756	756	188
Oct. 11-20--------	152	65	2	3.4	1530	15	12	2.5	8.8	127	89	24		0	805	4.8	.2	.1	1200	794	794	168
Oct. 21-31--------	147	63	3	3.4	1460	16	12	1.7	4.8	116	83	37		0	771	5.8	.3	.1	1120	732	732	170
Nov. 1-10---------	290	57	4	4.0	790	10	7.1	.39	4.6	65	43	12		0	394	6.0	.2	.1	608	393	393	84
Nov. 11-20--------	466	45	4	3.7	853	10	6.1	.39	4.4	65	42	12		0	388	6.8	.3	.1	588	388	388	82
Nov. 21-30--------	327	44	8	3.25	1010	15	11	.39	4.0	78	52	8.4		0	499	5.0	.2	.1	711	510	510	116
Dec. 1-10---------	261	45	10	3.25	1130	18	14	.73	4.8	90	62	5.6		0	576	7.5	.3	.1	806	600	600	120
Dec. 21-20--------	238	40	10	3.25	1180	19	14	.84	5.6	95	66	6.6		0	607	8.0	.3	.1	869	630	630	119
Dec. 21-31--------	209	40	5	3.35	1100	12	1.6	.66	5.3	85	58	35		0	528	15	.0	.1	778	495	495	128
Jan. 1-4, 1948----	286	41	7	3.60	1040	14	2.9	.43	5.7	86	57	29		0	513	13	.0	.1	779	489	489	122
Feb. 11-20--------	545	36	6	5.9	392	6.4	--	.06	2.3	29	17	19		11	157	8	.0	.1	243	142	133	—
Feb. 21-29--------	654	43	12	3.50	946	12	3.9	6.1	4.6	72	53	13		0	462	6	.0	.2	706	460	460	102
Mar. 1-10---------	375	45	8	3.65	636	9.6	2.2	3.3	2.8	45	33	8.2		0	284	5	.0	.7	433	285	285	62
Mar. 11-20--------	1,743	46	7	3.90	471	6.8	1.3	1.7	2.1	33	23	5.8		0	195	5	.1	1.0	303	199	199	44
Mar. 21-31--------	1,982	43	10	3.60	787	10	2.4	3.3	3.3	59	43	15		0	374	5	.0	.2	571	364	364	71
Apr. 1-10---------	1,042	46	7	3.50	885	10	2.1	1.8	3.9	66	50	17		0	423	5	.1	.2	641	410	410	84
Apr. 11-20--------	1,714	54	9	3.75	577	8.0	1.3	1.6	2.4	42	30	8.7		0	256	4	.0	.1	391	253	253	48
Apr. 21-30--------	847	55	9	3.40	1110	13	4.1	6.5	5.2	86	67	9.0		0	551	5	.0	.1	842	561	561	110
May 1-10----------	686	60	12	3.45	838	13	4.3	4.8	3.0	63	39	16		0	388	5.5	.2	.2	598	378	378	54
May 11-20---------	1,069	61	8	3.40	809	14	4.2	2.8	3.0	61	40	5.5		0	366	3.2	.2	.2	566	374	374	54
May 21-31---------	829	62	5	3.35	953	11	4.2	1.5	3.0	73	51	11		0	450	2.0	.3	.2	694	449	449	66
June 1-10---------	501	63	13	3.40	971	14	4.4	4.0	3.0	77	51	12		0	465	4.0	.3	.2	718	464	464	62
June 11-20--------	456	65	25	4.35	786	14	2.2	--	3.0	70	44	--		0	387	5.8	.3	.2	608	--	--	38
June 21-30--------	1,183	65	3	3.20	1070	16	10	.31	4.0	81	50	11		0	506	2.8	.2	.4	767	507	507	82
July 1-10---------	599	67	0	3.40	768	11	4.6	.19	2.0	56	40	1.5		0	341	2.0	.2	.3	521	355	355	58
July 11-20--------	777	68	1	3.30	902	16	7.8	.21	3.0	67	47	--		0	407	2.2	.2	.2	628	437	437	66
July 21-31--------	500	70	6	3.05	1190	18	6.0	.40	2.0	92	70	20		0	613	6	.4	.5	894	605	605	66
Aug. 1-10---------	303	70	4	3.00	1410	16	10	.49	3.5	118	90	17		0	777	8	.4	.5	1160	784	784	74
Aug. 11-20--------	262	71	9	3.00	1440	20	13	.40	3.5	128	70	46		0	800	6	.4	.5	1190	743	743	75
Aug. 21-31--------	216	72	9	5.2	1010	20	3.5	3.8	3.0	90	63	20		35	505	5	.5	.5	788	519	490	—
Sept. 1-10--------	172	72	22	3.00	1500	24	12	.46	3.5	132	96	16		0	843	8	.4	.5	1240	855	855	68
Sept. 11, 12, ~~17-20~~	152	72	10	3.30	1450	22	12	.40	3.5	131	96	29		0	840	7	.4	.5	1260	823	823	68
Sept. 21-30-------	137	66	11	3.10	1430	16	11	.48	3.0	120	92	22		0	793	8	.4	.5	1180	790	790	74
Average------	1/572	57	8	--	1029	14.2	6.9	1.7	3.7	82	57	17.1		--	517	5.9	.2	.3	775	517	--	88

1/ Includes mean daily discharges for days on which no samples were collected for chemical analysis.

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LACKAWANNA RIVER AT OLD FORGE, PA.

Chemical analyses, in parts per million, water year October 1948 to September 1949

Date of collection	Mean discharge (second feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$		Total acidity as H_2SO_4
																				Total	Noncarbonate	
Oct. 1-10, 1948---	118	62	9	2.85	1550	24	23	.45	3.0	132	73	28		0	858	7	.4	.5	1250	845	845	80
Oct. 11-20--------	128	58	8	3.40	1410	15	12	1.3	6.4	124	90	3.9		0	747	9.0	.3	.1	1100	783	783	160
Oct. 21-31--------	118	55	12	3.30	1560	14	15	1 9	6.5	148	94	3.0		0	844	7.5	.3	.1	1280	884	884	191
Nov. 1-10---------	323	61	10	3.60	1030	10	6.4	.61	6.1	86	62	8.4		0	515	8.2	.25	.1	769	530	530	86
Nov. 11-20--------	238	51	10	3.45	1130	12	10	.9	8.5	91	67	3.1		0	568	6.5	.2	.1	856	594	594	118
Nov. 21-30--------	326	47	10	3.60	836	8.0	4.2	.71	6.5	65	48	7.1		0	400	5.5	.1	.1	592	409	409	89
Dec. 1-10---------	321	45	9	3.70	901	9.0	6.5	.52	6.5	75	53	7.6		0	454	6.0	.1	.1	674	465	465	99
Dec. 11-20--------	387																					
Dec. 21-31--------	1,226	38	10	3.60	865	15	5.8	.69	8.7	68	49	4.9		0	416	7.5	.1	.1	613	433	433	90
Jan. 1-4, 1949----	1,432	39	3	3.80	596	6.5	3.6	.16	2.4	39	28	5.4		0	240	4.8	.1	.3	372	245	245	58
Jan. 5-10---------	2,328	39	3	4.5	204	4.2	6.7	.04	.90	14	8.6	--		0	73	3.0	.1	.6	123	109	109	16
Jan. 11-20--------	634	42	6	3.60	766	9.0	4.7	.16	2.1	52	39	12		0	338	4.5	.1	.2	530	333	333	89
Jan. 21-31--------	584	40	5	3.50	789	8.5	4.7	.15	3.3	58	40	5.0		0	347	5.2	--	.1	512	358	358	86
Feb. 1-10---------	459	39	3	3.50	877	9.5	5.9	.21	3.4	58	44	19		0	398	5.5	--	.1	602	381	381	96
Feb. 11-14--------	384	43	3	3.50	1030	11	6.5	.46	4.1	74	56	11		0	472	5.2	--	.2	734	476	476	117
Feb. 15-20--------	888	42	3	3.90	541	6.5	3.1	.08	2.2	38	25	11		0	228	8.2	.1	.2	350	225	225	56
Feb. 21-28--------	769	42	4	3.80	561	6.0	2.1	.08	1.9	40	28	6.3		0	231	8.2	--	.1	365	238	238	47
Mar. 1-10---------	674	40	4	3.70	665	7.5	1.8	.10	2.4	48	34	11		0	287	6.0	--	.1	435	284	284	56
Mar. 11-20--------	491	40	3	3.60	768	8.0	2.5	.18	3.3	54	39	15		0	337	6.7	.2	.1	500	328	328	69
Mar. 21-31--------	445	51	25	3.40	850	11	7.1	.73	4.5	66	35	17		0	391	5.4	.1	1.6	616	380	380	69
Apr. 1-10---------	545	46	22	3.65	676	9.3	6.3	1.4	6.0	49	31	3.9		0	298	3.2	.2	.6	468	307	307	50
Apr. 11-13, 16-18-	618	47	4	3.55	656	8.8	2.0	.20	6.0	49	32	5.9		0	287	2.8	.1	.6	455	291	291	57
Apr. 14, 15, 19, 20	1,210	50	25	3.80	348	6.6	5.3	.53	2.5	27	16	--		0	132	1.8	.1	1.5	213	177	177	25
Apr. 21-30--------	973	51	7	3.85	500	7.8	6.2	.88	6.0	38	26	--		0	218	1.9	.2	.4	337	257	257	36
May 1-10----------	712	59	10	3.60	600	8.5	7.6	.78	5.0	46	30	--		0	265	3.0	.1	.5	414	304	304	43
May 11-19---------	445	59	6	3.30	865	12	7.3	.82	7.5	71	45	--		0	408	3.0	.1	.4	648	446	446	73
May 20------------	1,280	51	10	5.9	314	6.7	--	--	--	--	--	--		--	113	6.5	--	1.8	231	--	--	--
May 21-27---------	938	56	4	3.65	511	7.8	5.5	.40	4.0	39	23	--		0	218	1.8	.1	.5	354	242	242	38
May 28-31---------	566	58	4	3.50	710	9.7	11	.62	2.0	56	27	2.6		0	321	3.1	.1	.6	518	334	334	54
June 1-10---------	317	62	6	3.30	1140	10	4.7	1.5	3.9	90	63	22		0	565	6.2	.1	.2	844	548	548	124
June 11-20--------	234	69	7	3.20	1330	9.2	7.5	4.1	5.6	106	77	23		0	690	8.0	.1	.8	1050	680	680	138
June 21-30--------	215	69	7	3.30	1310	7.3	4.7	5.0	6.3	108	78	28		0	689	8.5	.1	.7	1040	669	669	132
July 1-10---------	185	70	5	3.25	1350	9.0	7.1	3.9	6.0	109	78	31		0	712	7.5	.1	.8	1070	685	685	156
July 11-20--------	172	72	18	3.45	1310	8.0	6.6	6.0	6.0	112	78	33		0	714	7.5	.1	.6	1080	682	682	148
July 21-31--------	245	73	32	3.40	1190	9.6	4.9	6.8	5.7	103	71	15		0	621	8.0	.1	.6	961	626	626	138
Aug. 1-10---------	199	70	8	3.25	1210	16	6.7	1.0	4.6	99	71	10		0	606	7.0	.2	.1	886	619	619	140
Aug. 11-20--------	196	68	8	3.25	1240	14	8.9	.74	3.7	101	72	15		0	634	7.0	.3	.1	926	638	638	108
Aug. 21-31--------	201	65	8	3.30	1230	15	7.8	.94	4.2	104	73	6.5		0	619	7.0	.2	.1	924	641	641	110
Sept. 1-10--------	157	63	6	3.15	1380	15	8.1	1.2	6.2	112	76	30		0	718	6.0	.3	.1	1050	691	691	152
Sept. 11-20-------	142	64	8	3.10	1410	16	12	1.4	7.3	115	81	19		0	748	6.8	.3	.1	1080	749	749	154
Sept. 21-29-------	175	58	8	3.30	1240	14	9.0	.63	5.7	104	73	9.8		0	631	9.2	.3	.1	930	649	649	104
Sept. 30----------	317	55	--	4.30	547	--	--	--	--	--	--	--		--	263	--	--	--	--	--	--	--
Average------	534	55	9	3.60	927	10	6.9	1.2	4.8	76	52	--		0	454	5.9	.2	.4	694	475	475	94

West Branch Susquehanna River at Lock Haven, Pa.

Chemical analyses, in parts per million, water year October 1946 to September 1947

Date of collection	Mean discharge (second feet)	Temperature (°F.)	Color	pH	Specific conductance (K x 10^6 at 25°C.) 1/	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$: Total	Hardness as $CaCO_3$: Non carbonate	Total acidity as H_2SO_4
Oct. 1-10, 1946	1,468	56	4	3.85	27.1	5.7	2.4	0.06	0.68	18	6.4	5.5		0	96	3.4	0.2	0.4	144	93	93	27
Oct. 11-20	3,365	55	4	3.80	25.7	5.9	2.2	.06	.60	16	5.8	5.0		0	88	2.8	.1	.6	132	87	85	27
Oct. 21-31	6,857	52	4	4.25	14.1	5.6	1.1	.02	.45	9.8	3.6	2.5		0	48	2.0	.1	.9	78	48	48	14
Nov. 1-10	3,209	52	4	4.00	17.7	6.4	1.6	.02	.38	11	4.2	2.5		0	59	2.0	.1	.5	93	59	59	20
Nov. 11-20	1,958	42	3	3.75	26.5	6.5	2.5	.04	.52	16	5.9	2.9		0	87	2.5	.1	.3	131	88	88	32
Nov. 21-30	2,194	37	7	3.70	26.6	5.8	2.3	.03	.53	17	6.4	3.0		0	91	2.6	---	1.1	139	93	93	28
Dec. 1-10	2,014	33	8	3.95	20.8	5.0	1.4	.02	.41	14	5.3	4.1		0	72	2.5	--	1.0	111	70	70	19
Dec. 11-20	3,116	35	6	4.00	19.8	4.8	1.4	.02	.47	14	4.9	2.4		0	67	2.4	--	1.2	104	69	69	18
Dec. 21-31	3,670	32	5	4.00	19.1	4.6	1.1	.02	.49	13	4.7	3.7		0	65	2.4	---	1.2	100	64	64	17
Jan. 1-10, 1947	9,630	33	1	4.20	12.3	4.9	.9	.02	.14	8.5	3.3	.6		0	39	1.9	---	1.5	67	43	43	13
Jan. 11-20	8,740	33	2	4.00	14.7	5.2	1.2	.02	.22	9.5	3.6	.2		0	46	1.5	--	1.3	75	51	51	17
Jan. 21-31	13,050	35	1	4.20	11.2	5.0	.8	.02	.10	7.4	2.7	.8		0	35	1.2	--	1.2	59	37	37	14
Feb. 1-10	6,793	34	2	4.05	14.5	5.4	1.1	.02	.23	9.2	3.4	1.4		0	45	1.8	---	1.4	74	48	48	16
Feb. 11-20	3,060	32	4	3.90	25.3	6.6	2.4	.04	.35	14	5.6	4.0		0	79	2.4	--	1.6	128	78	78	27
Feb. 21-28	1,995	32	3	3.90	29.6	7.2	2.9	.04	.55	19	7.7	2.4		0	98	3.1	---	1.6	154	102	102	30
Mar. 1-10	1,622	32	1	3.80	33.1	7.8	3.1	.04	.58	20	8.0	5.0		0	110	3.2	---	1.6	175	109	109	34
Mar. 11-20	5,931	32	2	4.10	20.3	5.4	1.4	.03	.21	14	4.7	3.3		0	67	2.2	---	1.2	104	67	67	21
Mar. 21-31	8,739	36	1	4.35	11.4	4.3	.5	.02	.10	8.6	2.8	1.7		0	37	.9	--	1.2	60	37	37	12
Apr. 1-10	13,990	44	1	4.45	10.1	4.4	.4	.03	.19	7.8	2.7	2.3		0	35	1.4	--	1.0	56	34	34	10
Apr. 11-20	6,728	49	3	4.10	13.2	4.7	.9	.02	.19	9.0	3.0	1.1		0	41	2.2	---	1.0	67	44	44	13
Apr. 21-30	10,930	47	2	4.35	10.4	4.4	.5	.02	.20	8.2	2.7	1.5		0	35	1.2	--	1.0	58	36	36	10
May 1-10	10,460	50	3	4.50	9.85	4.3	.4	.01	.03	7.4	2.6	2.8		2	32	1.5	---	.7	54	31	30	11
May 11-20	10,630	55	4	4.30	12.7	4.2	.7	.08	.07	8.8	3.3	1.1		0	40	1.4	---	.8	66	42	42	13
May 21-31	16,040	59	3	4.6	9.74	4.4	.4	.01	.05	7.2	2.6	3.0		2	32	1.4	---	.8	53	31	29	11
June 1-10	8,873	61	5	4.50	12.2	4.6	.7	.02	.19	9.0	3.2	2.6		0	41	1.6	--	.6	67	40	40	11
June 11-20	6,765	64	3	4.40	12.2	5.0	.7	.13	.08	9.2	3.3	1.6		0	41	1.6	--	.6	68	42	42	13
June 21-30	2,286	70	3	4.05	21.6	4.9	1.5	.03	.40	14	5.9	3.1		0	73	2.0	--	.6	117	72	72	22
July 1-10	1,821	72	2	3.95	26.6	4.8	2.0	.08	.45	18	6.8	5.9		0	95	2.5	--	.6	148	90	90	28
July 11-20	3,158	70	3	4.40	17.8	3.9	1.2	.03	.35	14	5.0	3.6		0	66	2.0	--	.4	105	64	64	18
July 21-31	2,166	71	2	4.25	18.2	4.0	1.2	.03	.45	14	4.9	3.3		0	66	2.0	--	.5	106	65	65	19
Aug. 1-10	1,255	72	2	4.10	24.2	4.2	1.7	.08	.50	17	6.4	5.9		0	88	3.0	--	.5	140	83	83	27
Aug. 11-20	1,011	74	5	4.20	30.7	4.4	2.3	.03	.74	21	8.1	7.3		0	114	3.8	---	.6	184	109	109	40
Aug. 21-31	1,981	74	1	4.10	36.4	6.2	3.4	.07	.70	25	9.4	9.4		0	140	4.0	---	.9	223	132	132	49
Sept. 1-10	2,569	73	3	4.30	23.5	5.2	1.6	.04	.76	17	6.0	4.3		0	82	3.4	---	.8	138	82	82	28
Sept. 11-20	1,530	73	2	4.10	29.4	5.6	2.4	.09	.76	20	7.5	6.2		0	105	4.8	---	.6	169	103	103	36
Sept. 21-30	857	61	5	4.00	32.5	5.8	2.6	.12	.78	22	7.9	6.5		0	114	4.4	--	.8	177	112	112	38
Average	5,351	51	3	4.10	20.0	5.2	1.5	0.04	0.39	14	5.0	3.3		0	69	2.4	---	0.9	109	69	69	22

1/ To convert to micromhos at 25°, multiply by 10.

APRIL 1952
OMMERCE
APHS

WEST BRANCH SUSQUEHANNA RIVER AT LOCK HAVEN, PA.

Chemical analyses, in parts per million, water year October 1947 to September 1948

Date of collection	Mean discharge (second feet)	Temperature (°F.)	Color	pH	Specific conductance (micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$		Total acidity as H_2SO_4
																				Total	Non carbonate	
Oct. 1-10, 1947	537	55	1	3.60	407	6.0	3.2	0.10	0.60	28	10	8.8		0	147	6.4	0.0	1.0	219	144	—	47
Oct. 11-20	435	59	2	3.60	514	7.4	5.6	.34	1.0	36	14	5.4		0	188	7.2	.2	.1	296	195	—	64
Oct. 21-31	470	55	3	3.50	537	—	—	—	—	—	—	—	—	0	200	6.9	—	1.0	—	—	—	72
Nov. 1-10	1,293	49	5	3.45	553	—	—	—	—	—	—	—	—	0	197	8	—	—	—	—	—	64
Nov. 11-20	2,692	41	2	3.95	227	—	—	—	—	—	—	—	—	0	80	6	—	-	—	—	—	24
Nov. 21-30	4,873	39	5	3.95	198	—	—	—	—	—	—	—	—	0	67	2	—	—	—	—	—	19
Dec. 1-10	4,150	34	0	4.00	168	—	—	—	—	—	—	—	—	0	56	4	—	—	—	—	—	18
Dec. 11-20	4,984	34	1	4.10	147	—	—	—	—	—	—	—	—	0	49	2	—	—	—	—	—	13
Dec. 21-31	2,630	33	2	3.95	183	—	—	—	—	—	—	—	—	0	61	2	—	—	—	—	—	19
Jan. 1-10, 1948	5,312	33	3	3.85	197	5.7	1.5	.02	.34	13	4.9	3.2	1.4	0	65	2.5	.1	1.0	104	70	—	20
Jan. 11-20	3,191	32	4	3.85	212	—	—	—	—	—	—	—	—	0	72	2	—	—	—	—	—	22
Jan. 21-31	1,928	32	1	3.65	268	—	—	—	—	—	—	—	—	0	89	3	—	—	—	—	—	30
Feb. 1-10	1,294	32	1	3.65	317	—	—	—	—	—	—	—	—	0	107	4	—	—	—	—	—	35
Feb. 11-16	5,940	—	1	3.70	329	—	—	—	—	—	—	—	—	0	113	4	—	—	—	—	—	40
Feb. 17-20	1,605	—	1	4.35	138	—	—	—	—	—	—	—	—	0	46	1	—	—	—	—	—	14
Feb. 21-29	13,341	33	1	4.10	133	—	—	—	—	—	—	—	—	0	41	1	—	—	—	—	—	16
Mar. 1-10	9,601	36	1	4.05	135	—	—	—	—	—	—	—	—	0	43	2	—	1.2	—	—	—	15
Mar. 11-20	11,677	38	1	4.20	137	—	—	—	—	—	—	—	—	0	45	2	—	1.3	—	—	—	15
Mar. 21-31	15,711	48	0	4.10	109	—	—	—	—	—	—	—	—	0	35	1.5	—	1.3	—	—	—	10
Apr. 1-10	9,196	49	0	4.00	122	4.6	.8	.02	.21	8.2	3.3	1.0		0	40	1.6	.1	2.8	67	44	—	14
Apr. 11-20	36,668	48	1	4.10	138	—	—	—	—	—	—	—	—	0	42	1.6	—	1.2	—	—	—	14
Apr. 21-30	11,100	51	0	3.95	167	—	—	—	—	—	—	—	—	0	53	1	—	.7	—	—	—	17
May 1-10	12,926	52	0	4.10	123	—	—	—	—	—	—	—	—	0	43	2	—	.9	—	—	—	13
May 11-20	10,432	58	0	4.10	121	—	—	—	—	—	—	—	—	0	40	1	—	.7	—	—	—	12
May 21-31	6,777	61	5	4.25	112	—	—	—	—	—	—	—	—	0	38	2	—	.6	—	—	—	12
June 1-10	2,834	64	0	4.15	187	—	—	—	—	—	—	—	—	0	67	2	—	.6	—	—	—	20
June 11-20	2,927	67	2	4.00	242	—	—	—	—	—	—	—	—	0	90	2	—	.8	—	—	—	29
June 21-30	5,743	70	1	4.05	183	—	—	—	—	—	—	—	—	0	62	2	—	1.2	—	—	—	22
July 1-10	2,233	72	2	3.95	225	—	—	—	—	—	—	—	—	0	80	1	—	1.2	—	—	—	28
July 11-20	1,891	75	1	3.90	279	—	—	—	—	—	—	—	—	0	102	4	—	1.5	—	—	—	35
July 21-31	4,057	71	1	4.40	163	—	—	—	—	—	—	—	—	0	59	2	—	1.2	—	—	—	20
Aug. 1-10	1,994	70	1	4.10	237	—	—	—	—	—	—	—	—	0	88	2	—	1.1	—	—	—	29
Aug. 11-20	1,595	70	1	3.95	288	—	—	—	—	—	—	—	—	0	109	4	—	.6	—	—	—	36
Aug. 21-31	9,940	74	5	4.10	315	—	—	—	—	—	—	—	—	0	116	6	—	.5	—	—	—	59
Sept. 1-10	528	69	5	3.90	396	8.0	6.5	.07	1.4	30	12	.9		0	157	4.8	.1	1.5	249	170	—	48
Sept. 11-20	462	66	5	3.80	494	—	—	—	—	—	—	—	—	0	192	10	—	.5	—	—	—	92
Sept. 21-30	332	60	5	3.75	562	—	—	—	—	—	—	—	—	0	226	9	—	.5	—	—	—	94
Average	5,765	51	2	--	243	--	--	--	--	—	--	--	—	0	89	3.4	—	1.0	--	--	--	--

Chemical analyses, in parts per million, water year October 1948 to September 1949

Date of collection	Mean discharge (second feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as CaCO3 Total	Hardness as CaCO3 Non carbonats	Total acidity as H_2SO_4
Oct. 1-10, 1948	359	58	7	3.90	570	8.4	11	.16	1.5	46	17		3.8	0	250	7.5	.2	1.8	385	272	272	72
Oct. 11-20	819	52	5	3.50	619	--	--	.15	--	--	--		--	0	243	8	--	1.0	--	--	--	103
Oct. 21-31	521	46	5	3.66	462	--	--	.14	--	--	--		--	0	172	6	--	1.2	--	--	--	73
Nov. 1-10	1,194	50	6	3.80	451	--	--	--	--	--	--		--	0	171	7	--	--	--	--	--	66
Nov. 11-20	1,648	46	5	3.90	308	4.4	3.5	.04	.62	23	9.5		--	0	116	9	.0	1.4	172	135	135	66
Nov. 21-30	4,413	42	5	4.45	169	--	--	--	--	--	--		--	0	53	6	--	1.0	--	--	--	33
Dec. 1-10	4,597	40	5	4.50	165	--	--	--	--	--	--		--	0	57	3	--	.9	--	--	--	94
Dec. 11-20	10,000	37	5	4.50	130	--	--	--	--	--	--		--	0	41	4	--	1.0	--	--	--	42
Dec. 21-31	7,587	33	5	4.25	176	--	--	--	--	--	--		--	0	48	4	--	1.0	--	--	--	39
Jan. 1-10, 1949	15,370	37	5	4.30	131	--	--	--	--	--	--		--	0	38	1	--	1.0	--	--	--	39
Jan. 11-20	8,358	39	10	4.20	166	5.5	2.0	.04	.23	11	3.8	4.8	--	0	62	2.2	.0	1.2	103	58	58	56
Jan. 21-31	17,980	37	5	4.20	150	--	--	--	--	--	--		--	0	48	5	--	.7	--	--	--	32
Feb. 1-10	7,285	33	10	4.20	176	--	--	.0	--	--	--		--	0	52	2	.1	1.1	--	--	--	21
Feb. 11-15, 18-	6,653	35	20	4.20	213	--	--	.0	--	--	--		--	0	63	2	.1	1.4	--	--	--	24
Feb. 16, 17, 19, 20	15,625	36	10	4.40	118	--	--	.0	--	--	--		--	0	40	1	.0	1.0	--	--	--	12
Feb. 21-28	12,140	37	15	4.30	137	--	--	.0	--	--	--		--	0	48	1	.0	1.4	--	--	--	13
Mar. 1-10	7,497	36	20	4.30	151	--	--	.0	--	--	--		--	0	52	1	.0	1.0	--	--	--	18
Mar. 11-20	4,993	36	5	4.30	162	--	--	.0	--	--	--		--	0	56	2	.0	1.0	--	--	--	18
Mar. 21-31	6,245	51	20	4.00	160	--	--	.02	--	--	--		--	0	57	1	.1	1.2	--	--	--	20
Apr. 1-10	11,100	45	5	4.30	118	5.7	.9	.01	.05	8.1	3.5		.3	0	39	.8	.1	.7	60	42	42	18
Apr. 11-20	9,375	48	10	4.40	111	--	--	.02	--	--	--		--	0	34	1	.0	.8	--	--	--	10
Apr. 21-30	8,385	50	10	4.5	118	--	--	.02	--	--	--		--	0	43	1	.1	.6	--	--	--	8
May 1-10	4,266	60	10	4.20	155	--	--	.03	--	--	--		--	0	57	2	.0	.6	--	--	--	16
May 11-20	2,437	63	5	3.90	235	--	--	--	--	--	--		--	0	77	4	--	.1	--	--	--	30
May 21-31	8,170	58	5	4.25	135	--	--	--	--	--	--		--	0	43	2	--	.1	--	--	--	18
June 1-10	2,355	65	5	3.90	197	--	--	.15	--	--	--		--	0	65	1.5	.1	.1	--	--	--	24
June 11-20	1,165	73	5	3.60	304	--	--	.30	--	--	--		--	0	96	5	.1	1.0	--	--	--	40
June 21-30	808	77	10	3.40	415	--	--	.45	--	--	--		--	0	135	6	.1	.9	--	--	--	57
July 1-10	624	77	5	3.20	540	--	--	.45	--	--	--		--	0	174	9	.2	1.0	--	--	--	70
July 11-20	797	75	1	3.30	628	--	--	--	--	--	--		--	0	211	4	--	.3	--	--	--	68
July 21-31	650	79	2	3.40	526	--	--	.28	--	--	--		--	0	188	4	.2	1.1	--	--	--	56
Aug. 1-10	409	74	2	3.40	591	--	--	.38	--	--	--		--	0	211	6	.1	.8	--	--	--	62
Aug. 11-20	404	74	5	3.40	579	--	--	.5	--	--	--		--	0	214	7	--	1.4	184	184	184	74
Aug. 21-31	522	70	5	3.40	523	--	--	.45	--	--	--		--	0	188	6	--	1.0	163	163	163	64
Sept. 1-10	521	67	5	3.30	571	8.1	2.7	.50	2.0	35	15	11	--	0	200	5.8	.2	.3	310	193	193	52
Sept. 11-20	422	64	5	3.35	589	--	--	--	--	--	--		--	0	207	7	--	.0	--	157	157	64
Sept. 21-30	510	59	5	3.30	553	--	--	--	--	--	--		--	0	196	8	--	.0	--	146	146	60
Average	4,822	54	7	3.93	311	--	--	--	--	--	--		--	0	109	4.1	--	.9	--	--	--	44

RAPHS
OMMERCE
APRIL 1952
PYP712, 17/9 [no. 24]
H 24

West Branch Suequehanna River at Lewisburg, Pa.

Chemical analyses, in parts per million, water year October 1946 to September 1947

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Kx10⁶ at 25°C.) 1/	Silica (SiO_2)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$	
																			Total	Noncarbonate
Oct. 1-10, 1946---	3,922	60	1	6.8	17.1	4.6	0.01	0.04	18	5.2	4.6		12	57	4.2	--	1.6	105	66	64
Oct. 11-20---------	6,704	57	1	6.7	15.1	4.4	.01	.02	16	4.4	3.3		13	46	3.8	--	1.7	90	58	47
Oct. 21-31---------	12,380	54	1	6.4	11.9	5.2	.01	.12	12	3.6	2.3		7	38	2.5	--	1.0	72	45	39
Nov. 1-10----------	6,678	53	7	6.7	12.1	4.7	.01	.08	12	3.7	3.7		10	38	3.0	--	1.5	73	45	37
Nov. 11-20---------	3,913	45	6	6.7	15.9	5.2	.01	.22	15	4.9	6.3		12	52	4.0	--	1.9	96	58	48
Nov. 21-30---------	3,775	40	5	6.7	17.4	5.1	.01	.23	17	5.6	5.3		10	59	4.2	--	1.8	108	65	57
Dec. 1-10----------	3,714	36	1	6.4	15.8	3.6	.01	.19	15	5.0	5.2		12	53	2.1	--	1.8	95	58	48
Dec. 11-20---------	4,327	34	1	6.5	15.8	3.6	.01	.21	15	4.9	7.6		16	53	3.1	--	1.8	96	58	44
Dec. 21-31---------	4,768	33	1	6.5	13.9	4.3	.02	.17	13	4.3	4.2		10	44	2.5	--	2.1	84	50	42
Jan. 1-10, 1947---	12,260	32	1	5.6	11.3	4.3	.01	.18	10	3.5	3.3		2	39	2.4	--	1.0	68	39	38
Jan. 11-20---------	14,240	34	4	5.9	11.1	4.8	.01	.10	10	4.8	2.9		4	36	2.5	--	1.2	68	39	36
Jan. 21-31---------	24,560	37	4	5.9	8.59	4.7	.01	.13	8.1	2.5	3.7		6	29	1.8	--	1.1	53	30	26
Feb. 1-10----------	16,070	34	5	6.3	9.71	5.0	.01	.14	9.3	2.8	2.3		4	31	2.2	--	1.4	58	35	31
Feb. 11-20---------	6,276	33	5	6.4	14.0	2.6	.01	.11	13	4.3	5.2		8	47	3.4	--	1.4	85	50	44
Feb. 21-28---------	3,862	32	6	6.5	16.9	3.8	.01	.08	16	5.1	5.6		8	57	4.1	--	1.6	101	61	54
Mar. 1-10----------	3,410	33	6	6.0	18.1	5.4	.01	.21	18	5.7	5.4		9	61	5.0	--	2.6	112	68	61
Mar. 11-20---------	14,660	35	7	5.7	13.1	4.4	.02	.14	13	4.1	3.5		6	44	3.2	--	2.1	81	49	44
Mar. 21-31---------	18,270	39	7	5.8	9.04	4.6	.02	.05	9.2	2.6	2.9		9	26	3.0	--	1.6	55	34	26
Apr. 1-10----------	25,820	45	8	5.7	7.86	4.7	.05	.09	8.0	2.4	3.1		8	25	2.0	--	1.4	52	30	23
Apr. 11-20---------	13,390	50	6	5.9	9.30	4.6	.03	.11	9.2	2.9	3.6		9	30	2.2	--	1.2	58	35	28
Apr. 21-30---------	19,570	48	4	6.2	8.57	4.4	.01	.07	8.4	2.6	3.0		8	27	1.9	--	1.0	53	32	25
May 1-10-----------	24,750	51	3	6.4	7.81	4.5	.02	.03	9.0	2.5	1.5		9	24	2.0	--	1.1	48	33	25
May 11-20----------	17,440	56	4	6.3	9.26	4.5	.01	.04	9.2	2.8	3.6		9	30	2.1	--	1.0	57	34	27
May 21-31----------	30,730	62	4	6.3	7.43	4.6	.01	.03	7.8	2.3	2.2		7	24	1.6	--	.9	50	29	23
June 1-10----------	16,000	64	5	6.5	9.63	4.9	.02	.05	9.8	3.0	3.3		11	30	2.1	--	.9	59	37	28
June 11-20---------	14,170	67	3	6.3	10.0	6.1	.01	.05	9.6	3.0	2.8		8	31	1.9	--	1.1	62	36	30
June 21-30---------	5,285	73	1	6.5	13.3	6.8	.01	.00	6.8	4.0	3.4		12	40	2.8	--	.9	81	49	39
July 1-10----------	5,612	74	5	6.6	14.7	6.7	.01	.00	14	4.3	5.1		14	45	3.2	--	1.2	90	53	41
July 11-20---------	9,735	72	2	6.7	11.1	6.7	.02	.00	11	3.3	2.0		9	33	1.9	--	1.2	66	41	34
July 21-31---------	7,878	71	1	6.8	11.1	6.8	.02	.00	11	3.3	2.8		10	33	2.6	--	1.1	66	41	33
Aug. 1-10----------	3,909	76	1	7.0	13.3	7.0	.02	.00	13	4.0	3.7		14	38	3.6	--	1.1	78	49	37
Aug. 11-20---------	3,016	79	1	6.7	16.7	4.4	.00	.00	17	4.9	6.3		18	51	4.8	--	2.2	106	63	48
Aug. 21-31---------	4,821	76	0	6.4	17.7	5.0	.00	.05	18	5.2	5.7		11	60	4.0	--	2.0	112	66	57
Sept. 1-10---------	5,397	76	0	6.4	15.7	5.0	.00	.15	16	4.5	4.4		8	53	3.4	--	1.8	98	58	52
Sept. 11-20--------	3,058	75	0	6.6	16.7	4.4	.00	.00	17	5.0	5.8		13	55	4.8	--	1.1	102	63	52
Sept. 21-30--------	2,118	61	5	6.7	19.2	4.4	.01	.05	19	5.6	7.0		12	64	5.8	--	1.2	120	70	61
Average	10,520	53	3	6.4	13.0	4.6	0.01	0.09	13	3.9	4.4		10	42	3.0	--	1.4	79	48	40

1/ To convert to micromhos at 25°, multiply by 10.

Chemical analyses, in parts per million, water year October 1947 to September 1948

25918

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (micromhos at 25°C.)	Silica (SiO_2)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$	
																			Total	Noncarbonate
Oct. 1-10, 1947----	1,426	60	5	7.1	211	2.5	0.00	0.00	22	6.3	7.4		23	65	7.0	0.1	0.6	132	81	62
Oct. 11-20----------	1,147	64	5	6.7	245	1.3	.01	.00	25	7.5	8.2		22	76	8.5	.2	1.6	152	93	75
Oct. 21-31----------	1,179	61	7	6.8	281	--	--	--	--	--	--		26	91	11	--	--	--	--	--
Nov. 1-10-----------	2,815	51	8	6.7	249	--	--	--	--	--	--		18	81	8	--	--	--	--	--
Nov. 11-20----------	6,529	42	1	6.1	157	--	--	--	--	--	--		6	55	6	--	--	--	--	--
Nov. 21-30----------	6,859	37	1	6.4	145	--	--	--	--	--	--		10	47	4	--	--	--	--	--
Dec. 1-10-----------	5,603	34	5	6.3	120	--	--	--	--	--	--		7	39	2	--	--	--	--	--
Dec. 11-20----------	7,339	32	3	5.9	125	--	--	--	--	--	--		7	43	2	--	--	--	--	--
Dec. 21-31----------	4,395	32	4	6.4	126	--	--	--	--	--	--		8	42	2	--	--	--	--	--
Jan. 1-10, 1948-----	7,893	32	3	6.0	132	4.3	.02	.00	12	4.1	4.8		4	46	3.2	.1	1.6	83	47	44
Jan. 11-20----------	4,884	31	1	5.8	139	--	--	--	--	--	--		6	48	2	--	--	--	--	--
Jan. 21-31----------	3,229	--	1	6.3	162	--	--	--	--	--	--		10	53	4	--	--	--	--	--
Feb. 1-10-----------	2,410	--	6	6.3	189	--	--	--	--	--	--		12	64	6	--	--	--	--	--
Feb. 11-17----------	8,957	--	5	6.2	196	--	--	--	--	--	--		8	71	4	--	--	--	--	--
Feb. 18-20----------	30,000	--	3	6.3	106	--	--	--	--	--	--		8	36	1	--	--	--	--	--
Feb. 21-29----------	24,100	--	1	6.3	94.6	--	--	--	--	--	--		2	32	1	--	--	--	--	--
Mar. 1-10-----------	17,230	--	2	5.8	97.3	--	--	--	--	--	--		4	33	1	--	1.5	--	--	--
Mar. 11-20----------	24,073	44	10	6.0	104	--	--	--	--	--	--		6	34	2	--	1.6	--	--	--
Mar. 21-31----------	36,545	48	1	5.7	80.2	--	--	--	--	--	--		6	25	1.9	--	1.8	--	--	--
Apr. 1-10-----------	22,770	49	5	6.1	90.1	4.5	.02	.06	8.7	3.1	1.4		5	28	1.8	.1	1.7	56	34	30
Apr. 11-20----------	60,570	47	2	5.3	91.2	--	--	--	--	--	--		4	30	1.6	--	1.8	--	--	--
Apr. 21-30----------	18,760	53	2	5.4	114	--	--	--	--	--	--		7	40	1	--	1.4	--	--	--
May 1-10------------	22,560	53	5	5.7	101	--	--	--	--	--	--		2	35	2	--	1.2	--	--	--
May 11-20-----------	21,120	58	0	6.2	97.4	--	--	--	--	--	--		6	30	2	--	1.4	--	--	--
May 21-31-----------	14,614	61	0	6.4	92.8	--	--	--	--	--	--		9	27	2	--	1.1	--	--	--
June 1-10-----------	5,811	69	2	6.4	132	--	--	--	--	--	--		9	41	2	--	1.8	--	--	--
June 11-20----------	4,514	71	2	6.3	168	--	--	--	--	--	--		10	57	4	--	1.5	--	--	--
June 21-30----------	7,145	74	1	6.2	145	--	--	--	--	--	--		8	48	3	--	1.6	--	--	--
July 1-10-----------	3,608	78	2	6.4	161	--	--	--	--	--	--		9	54	3	--	1.1	--	--	--
July 11-20----------	3,469	79	3	6.4	178	--	--	--	--	--	--		10	60	4	--	1.8	--	--	--
July 21-31----------	7,366	77	1	6.4	147	--	--	--	--	--	--		8	49	3	--	1.4	--	--	--
Aug. 1-10-----------	3,326	75	1	7.0	156	--	--	--	--	--	--		15	48	4	--	1.3	--	--	--
Aug. 11-20----------	2,655	74	1	6.8	190	--	--	--	--	--	--		10	66	5	--	1.2	--	--	--
Aug. 21-31----------	1,955	80	1	6.8	213	--	--	--	--	--	--		13	72	7	--	1.5	--	--	--
Sept. 1-10----------	1,143	76	13	6.9	237	4.8	.01	.00	24	7.8	7.5		22	74	7.9	.2	1.7	145	92	74
Sept. 11-20---------	1,103	74	5	7.4	281	--	--	--	--	--	--		31	86	10	--	1.7	--	--	--
Sept. 21-30---------	8,959	66	2	7.3	308	--	--	--	--	--	--		25	102	10	--	1.4	--	--	--
Average-------	10,410	54	3	--	158	--	--	--	--	--	--		11	52	4.0	--	1.5	--	--	--

PY.P712, 1/9
F.no. 241
APRIL 1952
OMMERCE
APHS

SUSQUEHANNA RIVER BASIN--Continued

WEST BRANCH SUSQUEHANNA RIVER AT LEWISBURG, PA.

Chemical analyses, in parts per million, water year October 1948 to September 1949

Date of collection	Mean discharge (second feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$	
																				Total	Non carbonate
Oct. 1-10, 1948	992	61	15	7.1	331	9.2	--	.22	.00	33	10	14		40	100	11	.1	2.1	211	123	91
Oct. 11-20	1,949	55	10	6.2	319	--	--	--	--	--	--	--		26	101	12	--	--	--	--	--
Oct. 21-31	1,525	52	10	6.4	295	--	--	--	--	--	--	--		10	105	10	--	--	--	--	--
Nov. 1-5	1,354	53	10	6.4	251	--	--	--	--	--	--	--		18	82	10	--	--	--	--	--
Nov. 6-10	7,218	53	20	6.6	169	--	--	--	--	--	--	--		16	47	6	--	--	--	--	--
Nov. 11-20	5,652	46	10	6.2	173	5.0	--	.01	.00	17	5.2	7.9		14	59	5	.0	1.4	104	64	52
Nov. 21-30	12,260	43	10	6.3	121	--	--	--	--	--	--	--		12	34	4	--	1.8	--	--	--
Dec. 1-10	8,580	39	10	6.5	129	--	--	--	--	--	--	--		11	37	5	--	1.5	--	--	--
Dec. 11-20	15,140	35	5	6.7	114	--	--	--	--	--	--	--		4	35	4	--	2.1	--	--	--
Dec. 21-31	15,940	33	5	6.6	113	--	--	--	--	--	--	--		6	34	4	--	2.3	--	--	--
Jan. 1-10, 1949	33,640	37	10	6.5	90.6	--	--	--	--	--	--	--		3	31	2	--	2.4	--	--	--
Jan. 11-20	16,520	39	10	6.6	109	5.0	--	.04	.20	10	3.7	3.9		4	37	3.8	.0	1.8	64	40	37
Jan. 21-31	26,240	37	5	6.0	108	--	--	.02	--	--	--	--		4	36	2.4	.0	1.8	--	--	--
Feb. 1-10	14,910	34	5	6.1	120	--	--	--	--	--	--	--		4	43	4	--	1.5	--	--	--
Feb. 11-20	17,940	38	5	6.2	116	--	--	--	--	--	--	--		4	41	2	--	1.4	--	--	--
Feb. 21-28	21,420	40	5	6.3	96.1	--	--	--	--	--	--	--		3	34	4	--	1.3	--	--	--
Mar. 1-10	14,380	39	5	6.3	106	--	--	--	--	--	--	--		5	38	2	--	1.2	--	--	--
Mar. 11-20	9,769	38	5	6.4	116	--	--	--	--	--	--	--		7	43	2	--	1.3	--	--	--
Mar. 21-31	9,358	50	5	6.4	133	--	--	--	--	--	--	--		6	44	4	--	1.0	--	--	--
Apr. 1-10	18,250	47	10	6.6	91.9	5.1	--	.07	.05	9.1	3.1	2.2		6	30	2.2	.1	.7	56	35	31
Apr. 11-20	20,420	50	10	6.1	87.8	--	--	--	--	--	--	--		7	29	2	--	1.0	--	--	--
Apr. 21-30	15,490	54	10	6.1	94.1	--	--	--	--	--	--	--		7	32	2	--	.9	--	--	--
May 1-10	10,530	65	10	6.1	95.9	--	--	--	--	--	--	--		8	34	2	--	1.0	--	--	--
May 11-20	5,479	66	10	6.3	133	--	--	--	--	--	--	--		12	43	2	--	1.2	--	--	--
May 21-31	17,930	66	10	6.1	94.0	--	--	--	--	--	--	--		7	31	2	--	.6	--	--	--
June 1-10	5,239	70	5	6.4	119	--	--	.00	--	--	--	--		9	38	4	.1	.9	--	--	--
June 11-20	2,672	78	5	6.5	156	--	--	.00	--	--	--	--		16	49	5	.1	1.3	--	--	--
June 21-30	2,265	80	5	6.7	180	--	--	.00	--	--	--	--		13	57	5	.2	2.2	--	--	--
July 1-10	1,435	82	5	6.8	204	--	--	.00	--	--	--	--		15	67	5	.2	1.9	--	--	--
July 11-20	1,488	81	2	7.1	258	--	--	.02	--	--	--	--		16	89	4	.1	1.8	--	--	--
July 21-31	1,339	85	2	6.5	310	--	--	.02	--	--	--	--		8	118	7	.1	1.3	--	--	--
Aug. 1-10	1,041	84	5	6.7	284	--	--	--	--	--	--	--		12	101	8	--	1.6	--	111	101
Aug. 11-20	953	80	5	6.8	299	--	--	--	--	--	--	--		23	99	9	--	1.9	--	116	97
Aug. 21-31	1,551	78	5	7.1	272	--	--	--	--	--	--	--		27	82	9	--	1.9	--	106	84
Sept. 1-10	1,505	71	10	6.9	254	4.0	--	.01	.00	26	8.6	8.3		23	88	8.0	.1	1.9	162	100	81
Sept. 11-20	1,324	71	5	6.4	255	--	--	--	--	--	--	--		14	88	7	--	1.6	--	102	91
Sept. 21-30	1,896	64	5	6.4	209	--	--	--	--	--	--	--		18	67	6	--	1.3	--	78	63
Average	9,436	57	8	6.5	173	--	--	--	--	--	--	--		12	57	5	--	1.5	--	--	--

Chemical analyses, in parts per million, water year October 1947 to September 1948

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (micromhos at 25°C.)	Silica (SiO_2)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$	
																			Total	Non-carbonate
Oct. 1-10, 1947	224	57	12	7.4	387	3.1	0.02	0.00	44	13	14	2.7	152	34	24	0.1	4.2	221	163	39
Oct. 11-20	184	62	15	7.5	410	4.4	.02	.00	45	14	16	3.0	162	34	26	.2	3.8	231	170	37
Oct. 21-31	202	60	15	7.5	424	6.0	.02	.00	47	14	16	3.3	163	35	29	.1	3.5	241	175	41
Nov. 1-10	384	55	20	7.3	386	6.3	.03	.00	44	12	14	3.3	139	40	24	.2	4.9	222	159	45
Nov. 11-20	650	41	24	7.3	307	8.7	.04	.00	36	9.3	10	3.3	104	38	16	.1	4.2	179	128	43
Nov. 21-30	1,088	40	23	7.4	274	6.8	.06	.00	32	8.2	8.7	2.6	91	36	13	.1	4.5	162	114	39
Dec. 1-10	700	39	17	7.2	266	5.6	.04	.00	32	8.7	9.4	2.3	96	34	12	.0	4.5	162	116	37
Dec. 11-20	655	38	13	6.9	263	6.0	.03	.00	29	8.5	9.8	2.0	87	34	14	.1	4.5	155	107	36
Dec. 21-31	440	37	14	7.1	303	5.8	.02	.00	34	10	11	2.0	109	34	15	.1	5.4	176	126	37
Jan. 1-10, 1948	1,223	39	22	7.0	241	5.6	.03	.00	27	7.7	9.1	2.1	77	33	11	.2	5.2	142	99	36
Jan. 11-20	685	34	22	7.1	270	5.9	.06	.00	30	9.0	10	1.9	94	33	13	.2	5.6	157	112	35
Jan. 21-31	437	33	25	7.2	317	6.2	.06	.00	36	11	11	2.0	113	36	17	.1	5.7	186	135	42
Feb. 1-10	290	34	30	7.3	332	5.7	.06	.00	38	11	12	2.0	124	34	19	.1	4.8	193	140	38
Feb. 11-20	1,748	37	15	6.9	260	6.6	.02	.00	30	7.9	8.2	2.2	90	31	12	.1	5.7	155	107	34
Feb. 21-29	1,729	38	7	7.1	191	7.7	.02	.00	22	5.8	4.8	1.4	62	26	5.8	.1	4.4	113	79	28
Mar. 1-10	1,366	40	6	7.1	205	6.7	.05	.00	24	6.4	5.2	1.2	68	29	7.0	.1	4.4	120	86	30
Mar. 11-20	2,182	41	12	7.1	219	6.2	.09	.00	26	6.7	5.7	1.3	80	28	7.1	.1	4.2	130	92	27
Mar. 21-31	2,125	49	5	7.2	204	9.9	.07	.00	24	6.3	5.2	1.2	74	28	5.2	.1	4.0	123	86	25
Apr. 1-10	1,978	52	16	7.3	201	6.5	.10	.00	25	6.4	4.4	1.2	76	27	5.5	.1	3.7	119	89	26
Apr. 11-20	6,562	51	10	7.0	192	6.9	.07	.00	24	6.4	4.1	1.7	68	28	4.2	.2	4.6	117	86	30
Apr. 21-30	2,098	56	10	7.1	219	6.5	.03	.00	27	7.7	5.2	1.7	82	27	5.9	.2	5.0	130	99	32
May 1-10	3,234	54	10	7.0	181	5.5	.04	.00	22	6.0	4.7	1.4	60	27	5.1	.2	4.0	109	80	30
May 11-20	2,666	58	10	7.1	195	5.8	.04	.00	25	6.9	4.4	1.5	71	27	4.4	.2	4.1	117	91	33
May 21-31	1,007	62	10	7.2	250	3.7	.02	.00	31	9.0	6.6	1.4	98	28	7.9	.2	4.3	145	114	34
June 1-10	596	67	20	7.3	288	4.4	.03	--	32	10	11	2.6	122	28	12	.1	5.0	162	121	21
June 11-20	1,152	69	30	7.3	296	5.8	.03	--	34	10	12	2.1	117	37	12	.1	5.0	171	126	30
June 21-30	1,379	70	25	7.2	236	8.4	.03	--	30	7.6	6.7	1.8	95	30	7.8	.1	4.6	144	106	28
July 1-10	497	73	25	7.2	298	5.0	.00	--	34	11	11	1.9	123	31	10	.0	5.5	170	130	29
July 11-20	392	74	25	7.4	327	4.8	.02	--	41	11	10	1.5	133	31	16	.1	4.6	188	145	36
July 21-31	384	76	10	7.2	339	3.3	.01	.00	39	11	11	2.6	134	33	18	.1	3.9	193	143	33
Aug. 1-10	319	75	15	7.3	370	5.3	.00	.00	39	13	14	3.1	152	33	22	.1	4.0	209	151	26
Aug. 11-20	320	72	15	7.4	375	2.4	.01	.00	42	14	14	2.9	154	34	24	.1	4.1	213	162	36
Aug. 21-31	343	75	15	7.3	361	4.1	.02	.00	41	12	14	3.7	136	46	22	.1	5.4	209	152	40
Sept. 1-10	302	75	15	7.4	394	2.2	.02	.00	44	14	13	2.7	160	33	24	.1	4.1	221	168	36
Sept. 11-20	260	73	15	6.7	384	5.0	.05	.00	43	14	13	3.2	154	35	22	.1	4.4	215	165	39
Sept. 21-30	258	65	10	7.0	384	5.6	.02	.00	42	15	16	2.5	162	33	26	.1	4.2	232	164	34
Average	1,103	55	16	--	293	5.7	0.04	0.00	34	9.8	9.9	2.2	111	32	14	0.1	4.6	170	125	34

PVP 712.1 7/6 Enc. 24.1
APRIL 1952
COMMERCE
GAPHS

FRANKSTOWN BRANCH JUNIATA RIVER AT HUNTINGDON, PA.

Chemical analyses, in parts per million, water year October 1948 to September 1949

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$	
																				Total	Noncarbonate
Oct. 1-10, 1948	316	61	20	6.8	404	5.3	---	.02	.00	46	14	15	1.7	155	35	26	.1	4.6	229	172	45
Oct. 11-20	304	54	20	7.0	385	7.3	---	.02	.00	45	13	13	2.0	139	41	22	.15	5.2	221	166	52
Oct. 21-31	268	53	15	6.6	406	5.7	---	.02	.00	46	14	15	2.2	148	40	26	.1	4.5	230	172	51
Nov. 1-10	528	---	9	7.1	363	---	---	---	---	---	---	---		100	59	12	---	2.2	---	---	---
Nov. 11-20	527	40	10	7.1	195	7.0	---	.02	---	23	6.5	3.9		69	22	6.2	.1	5.1	121	84	28
Nov. 21-30	852	47	12	7.2	278	11	---	---	---	---	---	---		92	33	---	---	3.2	---	---	---
Dec. 1-10	1,109	43	9	7.0	262	8.1	---	---	---	---	---	---		84	32	---	---	5.1	---	---	---
Dec. 11-20	1,828	43	7	7.1	234	8.2	---	---	---	---	---	---		78	29	---	---	5.2	---	---	---
Dec. 21-31	1,795	38	7	7.1	251	9.1	---	---	---	---	---	---		92	30	---	---	5.3	---	---	---
Jan. 1-10	2,883	---	8	7.4	341	7.3	---	.02	---	39	11	13		120	42	17	.1	5.5	203	143	44
Jan. 11-20	1,519	43	10	7.1	226	8.5	---	---	---	---	---	---		78	29	---	---	5.7	---	---	---
Jan. 21-31	3,482	42	8	7.0	191	8.9	---	---	---	---	---	---		60	29	---	---	4.6	---	---	---
Feb. 1-10	1,621	40	7	7.3	229	7.9	---	---	---	---	---	---		82	26	---	---	6.2	---	---	---
Feb. 11-20	1,490	45	6	7.2	229	6.9	---	---	---	---	---	---		80	28	---	---	5.8	---	---	---
Feb. 21-28	2,531	46	8	7.3	196	8.2	---	---	---	---	---	---		70	27	---	---	4.1	---	---	---
Mar. 1-10	1,479	42	7	7.3	231	7.4	---	---	---	---	---	---		82	25	---	---	5.3	---	---	---
Mar. 11-20	1,047	41	3	7.5	251	5.3	---	---	---	---	---	---		97	29	---	---	4.0	---	---	---
Mar. 21-31	926	51	4	7.4	253	4.3	---	---	---	---	---	---		94	28	---	---	3.8	---	---	---
Apr. 1-10	1,602	49	8	6.9	199	4.2	---	.08	---	24	6.7	3.6		68	26	7.0	.0	3.4	129	87	32
Apr. 11-20	1,324	52	4	7.4	212	4.4	---	---	---	---	---	---		78	25	---	---	3.2	---	---	---
Apr. 21-30	1,049	56	7	7.1	240	3.0	---	---	---	---	---	---		87	27	10	---	2.1	---	---	---
May 1-10	780	63	7	7.3	273	2.9	---	---	---	---	---	---		103	27	13	---	2.2	---	---	---
May 11-20	551	66	---	---	305	---	---	---	---	---	---	---		---	---	---	---	---	---	---	---
May 21-31	739	63	5	7.3	261	6.1	---	---	---	---	---	---		94	31	14	---	3.5	---	---	---
June 1-10	440	69	7	7.6	302	4.0	---	---	---	---	---	---		110	28	18	---	2.7	---	---	---
June 11-20	380	75	8	7.4	344	2.4	---	---	---	---	---	---		126	31	22	---	2.1	---	---	---
June 21-30	322	78	8	7.5	358	4.8	---	---	---	---	---	---		136	29	23	---	2.8	---	---	---
July 1-10	369	77	11	7.3	350	4.9	---	.15	---	41	12	10		132	31	21	.2	4.8	196	152	44
July 11-20	1,191	75	7	7.4	278	7.2	---	---	---	---	---	---		91	35	12	---	4.0	---	---	---
July 21-31	584	77	5	7.4	277	5.8	---	---	---	---	---	---		107	33	8.5	---	4.6	---	---	---
Aug. 1-10	421	77	5	7.4	319	3.6	---	---	---	---	---	---		122	32	14	---	4.6	---	---	---
Aug. 11-20	383	77	7	7.4	365	5.4	---	---	---	---	---	---		139	31	23	---	4.9	---	---	---
Aug. 21-31	339	75	5	7.4	384	5.2	---	---	---	---	---	---		146	32	23	---	4.1	---	---	---
Sept. 1-10	279	72	7	7.3	378	5.2	---	---	---	---	---	---		144	32	22	---	3.6	---	---	---
Sept. 11-20	269	64	8	7.2	400	3.4	---	---	---	---	---	---		150	32	26	---	4.3	---	---	---
Sept. 21-30	268	63	11	7.3	412	2.6	---	.08	---	47	14	12		153	31	28	.1	5.1	263	175	49
Average	989	57	8	7.2	294	5.9	---	---	---	---	---	---		106	31	---	---	4.2	---	---	---

Juniata River at Newport, Pa.

Chemical analyses, in parts per million, water year October 1946 to September 1947

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Kx10⁶ at 25°C.) 1/	Silica (SiO_2)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Non-carbonate
Oct. 1-10, 1946	1,255	60	26	7.5	31.7	3.4	0.05	—	36	10	13		109	54	8.0	0.2	3.1	189	131	42
Oct. 11-20	2,527	57	29	7.4	25.7	4.2	.07	--	31	8.0	8.5		90	40	6.6	.2	4.2	153	110	36
Oct. 21-31	5,019	56	30	7.3	22.3	5.0	.10	--	28	7.2	5.5		78	36	4.5	.2	3.8	134	99	36
Nov. 1-10	2,435	55	17	7.4	23.4	6.0	.05	—	29	7.3	5.7		84	34	5.2	1	3.8	139	102	34
Nov. 11-20	1,526	45	12	7.5	27.6	5.6	.01	--	33	8.9	8.8		101	41	6.8	—	3.7	165	119	36
Nov. 21-30	1,292	40	12	7.7	29.6	3.7	.05	--	34	9.5	13		108	46	8.6	--	4.3	177	124	35
Dec. 1-10	1,086	36	12	7.8	30.3	3.0	.04	—	34	9.7	14		109	48	8.4	—	3.9	180	125	35
Dec. 11-20	1,212	36	25	8.1	31.3	2.7	.07	--	34	10	15		108	52	9.0	--	4.1	188	126	37
Dec. 21-31	2,340	32	25	7.4	25.6	4.2	.06	--	30	8.5	9.6		93	40	6.6	--	4.3	152	110	34
Jan. 1-10, 1947	4,447	33	6	6.8	17.7	5.5	.07	--	21	5.7	3.4		53	30	3.8	—	4.0	107	76	32
Jan. 11-20	5,035	36	6	7.2	17.3	5.8	.09	--	20	5.6	4.5		55	28	3.6	—	4.3	104	73	28
Jan. 21-31	6,667	37	7	7.1	15.4	5.8	.10	--	18	5.0	4.0		49	25	3.1	--	4.5	93	65	25
Feb. 1-10	3,830	34	6	7.3	17.9	5.4	.09	--	21	5.9	4.2		60	27	3.9	—	3.7	106	77	28
Feb. 11-20	2,474	34	4	7.1	20.7	4.8	.06	--	23	7.2	6.7		71	32	4.8	.1	3.8	122	87	29
Feb. 21-28	1,783	32	3	7.2	23.3	4.0	.06	--	26	7.9	8.4		81	36	5.8	.1	4.2	137	97	31
Mar. 1-10	1,914	33	4	7.1	23.2	4.6	.06	--	26	7.7	8.6		81	36	6.0	.1	3.4	137	96	30
Mar. 11-20	6,942	37	8	6.9	16.3	4.2	.04	--	18	5.1	5.2		50	27	3.6	.1	3.3	98	66	25
Mar. 21-31	5,175	39	6	7.0	15.0	4.5	.06	--	17	5.0	5.0		49	25	3.6	.1	2.9	90	63	23
Apr. 1-10	4,026	47	5	7.4	14.8	4.5	.04	--	18	4.5	3.3		46	24	4.1	--	2.5	86	63	26
Apr. 11-20	3,372	54	5	7.4	18.1	2.8	.03	--	22	5.4	5.6		62	29	4.6	—	2.2	104	77	26
Apr. 21-30	5,025	52	4	7.3	15.8	4.7	.03	--	19	4.7	5.7		54	26	4.2	--	2.5	92	67	23
May 1-10	6,596	55	6	7.3	14.2	6.3	.08	--	17	4.2	4.4		47	23	3.4	—	2.5	86	60	21
May 11-20	5,061	58	5	7.5	15.5	5.3	.06	--	18	4.6	6.1		55	24	3.8	—	2.1	91	64	19
May 21-31	5,418	67	8	7.5	15.3	4.6	.03	--	18	4.5	3.9		50	23	3.4	—	2.6	91	63	22
June 1-10	3,997	68	10	7.6	18.0	2.5	.03	--	21	5.4	5.6		64	26	4.2	—	1.6	106	75	22
June 11-20	3,752	70	7	7.5	18.0	4.8	.03	--	22	5.5	5.4		65	27	4.0	—	2.7	108	78	24
June 21-30	1,708	73	5	7.6	23.1	2.2	.01	--	27	7.1	8.1		81	36	6.4	—	1.6	135	97	33
July 1-10	1,939	74	5	7.6	24.9	2.0	.02	--	29	7.7	8.6		88	37	7.5	—	1.8	148	104	32
July 11-20	3,480	74	6	7.6	22.7	4.4	.07	--	25	6.7	8.4		72	38	5.5	—	2.4	132	90	31
July 21-31	2,359	74	4	7.5	22.9	4.2	.02	--	27	6.8	7.1		76	36	6.2	—	2.7	134	95	33
Aug. 1-10	1,262	76	8	7.6	27.8	3.2	.01	—	33	8.4	11		100	43	8.6	—	2.0	170	117	35
Aug. 11-20	1,363	78	10	7.5	29.1	3.2	.02	—	34	8.7	13		100	48	11	—	1.5	175	121	39
Aug. 21-31	3,418	76	22	7.3	25.8	6.2	.12	—	31	7.9	8.8		78	49	7.8	—	3.8	161	110	46
Sept. 1-10	3,039	73	25	7.4	21.9	7.6	.14	--	27	6.4	6.4		74	34	6.2	—	3.4	143	94	33
Sept. 11-20	1,128	75	10	7.8	28.9	3.8	.02	--	34	8.8	13		104	46	10	—	1.6	174	121	31
Sept. 21-30	836	60	7	7.6	33.1	1.2	.01	—	37	10	15		107	58	12	—	2.1	194	133	46
Average	3,217	54	11	7.4	22.3	4.3	0.05	—	26	7.0	7.9		76	36	6.0	—	3.1	133	94	31

1/ To convert to micromhos at 25°, multiply by 10.

PYP712, 1/9 Fno. 241
APRIL 1952
OMMERCE
APHS

SUSQUEHANNA RIVER BASIN--Continued

JUNIATA RIVER AT NEWPORT, PA.

Chemical analyses, in parts per million, water year October 1947 to September 1948

35818

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (micromhos at 25°C.)	Silica (SiO_2)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Non-carbonate
Oct. 1-10, 1947	659	58	5	7.7	363	1.4	0.01	0.00	39	11	18		112	66	15	0.0	1.3	213	143	51
Oct. 11-20	621	63	7	7.4	375	--	--	--	--	--	--		117	69	15	--	--	--	--	--
Oct. 21-31	707	61	5	7.5	375	--	--	--	--	--	--		122	65	16	--	--	--	--	--
Nov. 1-10	1,854	51	12	7.4	283	--	--	--	--	--	--		90	46	12	--	--	--	--	--
Nov. 11-20	3,303	42	30	6.7	199	--	--	--	--	--	--		57	30	8	--	--	--	--	--
Nov. 21-30	3,361	39	8	7.1	229	--	--	--	--	--	--		71	40	6	--	--	--	--	--
Dec. 1-10	2,026	36	12	7.2	229	--	--	--	--	--	--		74	38	6	--	--	--	--	--
Dec. 11-20	1,819	34	10	7.2	231	--	--	--	--	--	--		71	40	6	--	--	--	--	--
Dec. 21-31	1,246	32	8	7.3	264	--	--	--	--	--	--		84	45	9	--	--	--	--	--
Jan. 1-10, 1948	4,008	33	18	6.9	187	5.4	.09	.00	20	5.4	8.0		52	35	5.0	.1	4.0	113	72	30
Jan. 11-20	2,000	31	28	7.8	210	--	--	--	--	--	--		61	38	4	--	--	--	--	--
Jan. 24,31	1,275	--	9	7.2	250	--	--	--	--	--	--		78	48	6	--	--	--	--	--
Feb. 8,10	1,050	--	11	7.3	286	--	--	--	--	--	--		88	54	8	--	--	--	--	--
Feb. 12-19	4,433	31	15	7.0	249	--	--	--	--	--	--		76	43	7	--	--	--	--	--
Feb. 21-29	7,579	32	20	7.1	140	--	--	--	--	--	--		41	23	1	--	--	--	--	--
Mar. 1-10	6,421	32	16	7.2	150	--	--	--	--	--	--		48	25	2	--	--	--	--	--
Mar. 11-20	6,789	33	25	7.0	139	--	--	--	--	--	--		42	22	1	--	4.0	--	--	--
Mar. 21-31	8,726	49	23	7.1	141	--	--	--	--	--	--		44	22	2	--	3.3	--	--	--
Apr. 1-10	8,225	51	9	6.7	137	6.8	.09	.00	16	4.3	2.8		42	21	2.9	.1	3.7	84	58	23
Apr. 11-20	21,636	50	10	6.7	131	--	--	--	--	--	--		42	20	2	--	4.3	--	--	--
Apr. 21-30	7,179	54	6	7.0	162	--	--	--	--	--	--		57	23	1	--	2.7	--	--	--
May 1-10	11,912	53	12	6.9	120	--	--	--	--	--	--		41	19	1	--	3.0	--	--	--
May 11-20	11,323	59	15	6.8	123	--	--	--	--	--	--		38	18	2	--	3.3	--	--	--
May 21-31	5,136	63	5	7.0	170	--	--	--	--	--	--		58	26	3	--	3.2	--	--	--
June 1-10	3,399	67	7	7.2	183	--	--	--	--	--	--		63	28	4	--	2.9	--	--	--
June 11-20	3,041	70	5	7.3	216	--	--	--	--	--	--		76	33	5	--	2.3	--	--	--
June 21-30	6,154	72	10	6.9	171	--	--	--	--	--	--		54	28	3	--	4.2	--	--	--
July 1-10	2,708	75	6	7.1	209	--	--	--	--	--	--		69	34	4	--	3.6	--	--	--
July 11-20	1,465	78	5	7.3	258	--	--	--	--	--	--		86	44	7	--	1.8	--	--	--
July 21-31	1,398	79	6	7.3	284	--	--	--	--	--	--		92	50	8	--	1.9	--	--	--
Aug. 1-10	1,087	76	6	7.3	316	--	--	--	--	--	--		99	57	11	--	1.8	--	--	--
Aug. 11-20	944	75	4	7.6	327	--	--	--	--	--	--		103	60	10	--	1.6	--	--	--
Aug. 21-31	1,047	79	5	7.6	327	--	--	--	--	--	--		100	61	10	--	1.8	--	--	--
Sept. 1-10	611	76	12	7.6	376	2.1	.02	.00	36	12	21		104	77	13	.2	.8	228	139	54
Sept. 11-20	632	73	5	7.8	385	--	--	--	--	--	--		112	77	14	--	.8	--	--	--
Sept. 21-30	544	64	6	7.7	415	--	--	--	--	--	--		112	90	15	--	.9	--	--	--
Average	1/4,046	54	11	--	239	--	--	--	--	--	--		74	42	6.8	--	2.6	--	--	--

1/ Sum of daily discharges for days on which no samples were collected for chemical analysis.

JUNIATA RIVER AT NEWPORT, PA.

Chemical analyses, in parts per million, water year October 1948 to September 1949

Date of collection	Mean discharge (second feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Non carbonate
Oct. 1-10, 1948	816	60	15	7.3	397	1.0	—	.04	—	40	13	24	3.5	120	78	16	.0	1.3	231	153	55
Oct. 11-20	1,258	54	11	7.5	341	—	—	—	—	—	—	—	—	103	66	10	—	3.1	—	—	—
Oct. 21-31	899	51	6	7.0	344	—	—	—	—	—	—	—	—	101	66	12	—	2.0	—	—	—
Nov. 1-10	2,077	54	9	7.1	324	—	—	—	—	—	—	—	—	133	40	19	—	5.3	—	—	—
Nov. 11-18	1,900	48	20	7.2	269	5.4	—	.04	.00	29	7.6	14		80	51	10	.0	2.4	160	104	38
Nov. 19, 20	4,000	50	35	6.9	143	4.2	—	.04	.00	19	4.4	—		32	20	5	.0	5.2	84	66	39
Nov. 21-30	5,449	45	7	6.8	176	—	—	—	—	—	—	—		49	31	4.4	—	3.8	—	—	—
Dec. 1-10	5,092	41	6	6.8	177	—	—	—	—	—	—	—		53	30	4.9	—	5.1	—	—	—
Dec. 11-20	6,846	39	8	6.8	179	—	—	—	—	—	—	—		54	26	6.1	—	5.0	—	—	—
Dec. 21-31	7,127	34	6	6.8	171	—	—	—	—	—	—	—		52	26	3.8	—	5.8	—	—	—
Jan. 1-10, 1949	12,500	37	8	7.0	130	7.6	—	.06	—	15	3.8	4.1		36	23	3	.1	4.9	88	53	24
Jan. 11-20	5,424	41	6	6.9	159	—	—	—	—	—	—	—		49	25	3.6	—	4.7	—	—	—
Jan. 21-31	11,830	39	6	7.0	144	—	—	—	—	—	—	—		44	24	3.5	—	5.0	—	—	—
Feb. 1-10	6,830	37	5	6.8	146	—	—	—	—	—	—	—		45	23	3.2	—	4.4	—	—	—
Feb. 11-20	6,310	41	7	7.4	153	6.4	—	—	—	—	—	—		47	25	4.0	—	3.6	—	—	—
Feb. 21-28	10,290	43	8	7.4	122	6.4	—	—	—	—	—	—		37	20	2.8	—	3.8	—	—	—
Mar. 1-10	5,430	41	3	7.4	152	6.2	—	—	—	—	—	—		52	23	—	—	2.8	—	—	—
Mar. 11-20	3,753	41	3	7.4	172	4.5	—	—	—	—	—	—		66	27	—	—	3.2	—	—	—
Mar. 21-31	2,838	53	5	7.4	206	2.1	—	—	—	—	—	—		67	34	—	—	2.6	—	—	—
Apr. 1-10	4,997	52	5	7.0	160	4.1	—	.04	—	18	4.9	5.4		51	26	3.9	.0	3.0	106	65	23
Apr. 11-20	7,224	53	8	7.3	119	5.7	—	—	—	—	—	—		37	18	—	—	3.3	—	—	—
Apr. 21-30	4,031	57	3	7.0	157	5.6	—	—	—	—	—	—		54	23	—	—	1.4	—	—	—
May 1-10	3,186	67	5	7.1	174	4.3	—	—	—	—	—	—		44	26	—	—	1.8	—	—	—
May 11-20	2,104	68	5	7.0	205	3.7	—	—	—	—	—	—		70	29	—	—	1.7	—	—	—
May 21-31	2,451	65	5	7.2	205	5.8	—	—	—	—	—	—		79	28	—	—	2.0	—	—	—
June 1-10	1,401	72	6	7.6	236	2.6	—	—	—	—	—	—		80	35	8.5	.8	.8	—	—	—
June 11-20	1,216	78	6	7.4	279	2.2	—	—	—	—	—	—		88	45	10	—	.8	—	—	—
June 21-30	1,240	79	7	7.3	273	3.6	—	—	—	—	—	—		89	43	9.4	—	1.0	—	—	—
July 1-10	1,407	80	8	7.3	285	4.7	—	.04	—	31	9.4	12		94	49	9.4	.1	1.9	181	116	39
July 11, 12, 14-18	4,114	78	16	7.4	216	4.8	—	—	—	—	—	—		70	34	6.0	—	2.4	—	—	—
July 13, 19, 20	8,973	72	22	7.4	133	5.4	—	—	—	—	—	—		42	20	3.5	—	2.6	—	—	—
July 21-31	3,128	81	7	7.1	183	7.7	—	—	—	—	—	—		60	31	3.9	—	3.3	—	—	—
Aug. 1-10	1,870	79	6	7.3	222	5.4	—	—	—	—	—	—		76	37	5.1	—	1.9	—	—	—
Aug. 11-20	1,183	79	6	7.4	270	3.8	—	—	—	—	—	—		90	44	9.1	—	1.5	—	—	—
Aug. 21-31	1,037	76	5	7.4	309	4.6	—	—	—	—	—	—		96	53	10	—	1.8	—	—	—
Sept. 1-10	946	72	6	7.3	325	3.3	—	—	—	—	—	—		106	54	11	—	1.9	—	—	—
Sept. 11-20	756	69	5	7.2	367	3.0	—	—	—	—	—	—		108	68	14	—	1.9	—	—	—
Sept. 21-30	704	63	10	7.7	380	1.9	—	.04	—	38	11	19		110	66	15	.1	2.3	235	140	50
Average	3,902	57	8	7.2	221	—	—	—	—	—	—	—		70	36	—	—	2.9	—	—	—

PVP 712, 17/6 Inc. 24, I
APRIL 1952
COMMERCE
APHS

Raystown Branch Juniata River at Hawn Bridge, near Huntingdon, Pa.

Chemical analyses, in parts per million, water year October 1946 to September 1947

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Kx10⁶ at 25°C.) 1/	Silica (SiO_2)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$	
																			Total	Noncarbonate
Oct. 1-10, 1946	258	60	8	7.7	24.4	2.8	0.01	0.00	30	10	3.7	2.8	84	45	2.6	0.1	3.5	147	116	47
Oct. 11-20	378	60	6	7.5	23.9	2.6	.01	.00	29	9.8	2.8	3.3	84	42	2.6	.1	3.5	142	113	44
Oct. 21-31	1,237	57	12	6.7	19.3	4.6	.02	.00	23	7.3	3.6	3.2	65	35	2.8	.1	3.4	115	87	34
Nov. 1-10	458	56	10	7.5	16.8	6.5	.02	.00	20	5.9	2.7	2.6	55	28	2.5	.1	4.2	99	74	29
Nov. 11-20	314	49	6	7.7	21.1	5.8	.02	.00	26	8.1	3.5	2.7	75	36	2.6	.1	3.9	125	98	37
Nov. 21-30	261	44	5	7.8	22.7	3.0	.02	.00	28	9.4	3.8	2.2	80	41	2.5	.1	4.2	134	108	43
Dec. 1-10	218	40	10	7.3	23.4	4.2	.01	.00	30	9.3	2.7	2.0	83	41	2.8	.0	3.0	136	113	45
Dec. 11-20	286	38	12	7.3	23.9	4.2	.01	.00	30	9.7	2.6	1.8	84	42	2.8	.0	3.2	138	115	46
Dec. 21-31	786	35	25	7.2	21.8	4.4	.03	.00	27	8.3	2.9	2.0	72	39	2.8	.0	3.3	124	102	42
Jan. 1-10, 1947	1,417	33	8	6.9	12.7	6.5	.03	.00	15	4.3	2.6	1.3	36	24	2.2	.0	3.7	78	55	26
Jan. 11-20	1,277	36	8	7.0	13.8	6.5	.03	.00	16	4.8	2.4	1.3	40	26	2.5	.0	3.3	83	60	27
Jan. 21-31	1,691	37	10	7.1	11.3	7.1	.05	.00	13	3.8	2.6	1.2	31	21	2.1	.0	3.5	69	48	23
Feb. 1-10	910	35	8	7.1	13.5	6.3	.07	.00	16	4.9	2.4	1.4	40	26	2.1	.0	3.0	82	60	27
Feb. 11-20	556	33	4	6.5	16.6	7.0	.02	.00	19	6.4	2.3	1.5	47	32	2.2	.1	4.4	100	74	35
Feb. 21-28	366	32	5	6.8	17.7	4.8	.02	.00	21	6.9	2.4	1.4	53	35	2.0	.1	4.1	108	81	37
Mar. 1-10	466	34	9	6.4	12.2	6.8	.04	.00	13	4.5	2.4	1.3	32	24	2.0	.1	3.8	85	51	25
Mar. 11-20	2,027	37	5	7.0	11.6	5.7	.05	.00	12	4.2	2.5	1.5	29	23	3.2	.1	3.6	72	47	23
Mar. 21-31	1,607	39	6	7.0	12.2	5.4	.06	.00	14	4.2	2.3	1.5	31	23	3.8	.0	3.4	75	52	27
Apr. 1-10	1,058	41	5	7.0	11.0	5.7	.04	.00	12	4.0	2.4	1.5	30	22	1.9	.0	2.1	66	46	22
Apr. 11-20	614	48	3	6.9	10.2	5.9	.02	.00	10	3.9	2.1	1.7	26	22	1.8	.1	1.6	64	41	20
Apr. 21-30	879	54	3	7.1	13.0	4.6	.03	.00	15	4.6	2.2	1.6	39	27	1.6	.1	1.5	79	56	24
May 1-10	1,319	61	1	6.9	11.2	5.2	.03	.00	12	3.8	2.0	1.5	32	23	1.5	.1	1.5	68	46	19
May 11-20	1,121	61	5	7.1	11.4	5.7	.04	.00	13	3.7	2.0	1.6	34	22	1.6	.1	2.0	70	48	20
May 21-31	1,315	64	2	6.9	13.2	4.7	.02	.00	15	4.6	1.8	1.6	38	26	1.8	.1	1.6	82	56	25
June 1-10	808	71	3	7.0	13.0	5.4	.03	.00	15	4.4	1.9	1.8	39	24	1.8	.1	2.0	80	56	24
June 11-20	716	71	8	7.1	15.4	7.0	.02	.00	18	5.4	2.4	1.4	49	29	1.9	.1	2.0	93	67	27
June 21-30	284	73	8	7.1	16.4	5.2	.02	.00	19	5.9	2.5	1.4	50	33	2.4	.1	2.0	101	72	31
July 1-10	328	73	7	7.2	20.8	3.4	.02	.00	24	8.0	2.7	1.4	62	44	2.0	.1	1.7	125	93	42
July 11-20	678	74	22	7.3	17.2	6.3	.03	.00	21	5.9	2.3	1.7	53	33	2.0	.1	2.4	106	77	33
July 21-31	388	76	10	7.5	18.4	4.8	.03	.00	23	6.2	2.6	1.5	60	34	2.0	.1	1.7	111	83	34
Aug. 1-10	237	78	5	7.2	21.6	4.7	.02	.00	27	8.3	2.6	2.2	63	48	2.4	.1	2.3	133	102	50
Aug. 11-20	322	78	3	7.2	26.8	3.8	.01	.00	32	11	2.3	1.9	63	72	2.6	.1	1.8	168	125	74
Aug. 21-31	776	76	7	7.0	17.0	8.0	.02	.00	21	5.9	2.4	2.0	58	30	2.1	.2	2.6	105	77	29
Sept. 1-10	275	78	3	7.1	16.6	6.4	.02	.00	20	5.7	2.5	2.2	51	33	2.1	.1	2.7	103	73	32
Sept. 11-20	176	78	5	7.4	21.6	6.0	.02	.00	27	7.8	2.5	2.1	64	46	2.8	.1	2.3	139	99	47
Sept. 21-30	125	76	6	7.3	24.8	4.3	.02	.00	30	10	2.8	2.3	76	52	2.9	.0	1.8	147	116	54
Average	730	55	7	7.1	17.2	5.3	0.03	0.00	20	6.4	2.6	1.9	53	33	2.3	0.1	2.8	104	76	33

1/ To convert to micromhos at 25°, multiply by 10.

RAYSTOWN BRANCH JUNIATA RIVER AT HAWN BRIDGE NEAR HUNTINGDON, PA.

Chemical analysee, in parte per million, water year October 1947 to September 1948

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (micromhos at 25°C.)	Silica (SiO_2)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potaeium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardnese as $CaCO_3$ Total	Hardnese as $CaCO_3$ Noncarbonate
Oct. 1-10, 1947	104	63	3	7.2	263	4.4	0.12	0.00	32	12	0.9		82	56	2.9	0.1	1.6	160	129	62
Oct. 11-20	106	62	5	7.3	264	2.8	.02	.00	32	11	1.5		80	55	2.5	.2	1.8	159	125	60
Oct. 21-31	115	61	7	7.2	263	--	--	--	--	--	--		82	57	--	--	--	--	--	--
Nov. 1-10	202	56	8	7.4	285	--	--	--	--	--	--		94	61	--	--	--	--	--	--
Nov. 11-20	311	46	9	7.4	226	--	--	--	--	--	--		70	48	--	--	--	--	--	--
Nov. 21-30	564	41	16	7.2	150	--	--	--	--	--	--		40	29	--	--	--	--	--	--
Dec. 1-10	310	34	11	6.7	101	--	--	--	--	--	--		23	22	--	--	--	--	--	--
Dec. 11-20	295	32	5	6.9	130	--	--	--	--	--	--		32	27	--	--	--	--	--	--
Dec. 21-31	198	32	3	7.2	194	--	--	--	--	--	--		55	39	--	--	--	--	--	--
Jan. 1-10, 1948	1,236	32	12	6.9	126	5.8	.09	.00	14	4.3	2.9		30	26	2.0	.1	5.2	79	53	28
Jan. 11-20	512	32	7	6.6	136	--	--	--	--	--	--		35	26	--	--	--	--	--	--
Jan. 21-31	275	32	8	7.0	153	--	--	--	--	--	--		40	30	--	--	--	--	--	--
Feb. 1-10	212	32	4	7.2	190	--	--	--	--	--	--		52	38	--	--	--	--	--	--
Feb. 11-20	1,500	33	20	6.6	104	--	--	--	--	--	--		23	20	--	--	--	--	--	--
Feb. 21-29	1,993	32	8	6.9	100	--	--	--	--	--	--		22	20	--	--	5.2	--	--	--
Mar. 1-10	1,685	33	9	7.0	121	--	--	--	--	--	--		28	24	--	--	4.8	--	--	--
Mar. 11-20	1,420	40	12	7.1	112	--	--	--	--	--	--		26	22	--	--	4.6	--	--	--
Mar. 21-31	2,210	47	--	7.0	110	--	--	--	--	--	--		28	22	--	--	3.1	--	--	--
Apr. 1-10	2,146	48	10	6.5	104	6.8	.16	.00	11	3.7	2.3		27	19	2.1	.1	3.2	67	43	21
Apr. 11-20	5,556	50	17	6.8	106	--	--	--	--	--	--		28	21	2.2	--	4.1	--	--	--
Apr. 21-30	1,936	53	22	6.6	81.3	--	--	--	--	--	--		22	17	1.4	--	2.4	--	--	--
May 1-10	3,308	55	10	6.6	98.5	--	--	--	--	--	--		22	19	--	--	2.9	--	--	--
May 11-20	2,543	62	12	6.8	115	--	--	--	--	--	--		29	24	--	--	2.8	--	--	--
May 21-31	1,215	65	10	7.0	151	--	--	--	--	--	--		42	31	--	--	2.7	--	--	--
June 1-10	773	69	10	6.8	136	--	--	--	--	--	--		39	25	--	--	3.2	--	--	--
June 11-20	847	71	5	6.9	161	--	--	--	--	--	--		52	31	1	--	2.8	--	--	--
June 21-30	1,769	70	17	6.6	122	--	--	--	--	--	--		36	23	1	--	3.5	--	--	--
July 1-10	915	75	14	6.7	155	--	--	--	--	--	--		55	27	1	--	3.5	--	--	--
July 11-20	317	78	4	6.9	191	--	--	--	--	--	--		67	33	1	--	3.6	--	--	--
July 21-31	2,452	79	3	7.0	218	--	--	--	--	--	--		76	41	2	--	2.7	--	--	--
Aug. 1-10	262	77	2	7.4	251	--	--	--	--	--	--		79	51	2	--	2.6	--	--	--
Aug. 11-20	248	73	3	7.5	263	--	--	--	--	--	--		86	53	2	--	2.7	--	--	--
Aug. 21-31	252	77	2	7.5	263	--	--	--	--	--	--		85	50	4	--	2.8	--	--	--
Sept. 1-10	128	76	10	7.3	258	4.4	.02	.00	31	11	1.8		76	56	2.6	.1	2.4	158	123	60
Sept. 11-20	137	74	5	7.4	272	--	--	--	--	--	--		80	59	3	--	2.3	--	--	--
Sept. 21-30	146	67	6	7.6	289	--	--	--	--	--	--		93	62	2	--	2.2	--	--	--
Average	990	54	8.7	--	174	--	--	--	--	--	--		51	35	2.0	--	--	--	--	--

PVP 7.1.2, 1/6/
I.no. 2.4.1
APRIL 1952
OMMERCE
APHS

RAYSTOWN BRANCH JUNIATA RIVER NEAR HUNTINODON, PA.

Chemical analyses, in parts per million, water year October 1948 to September 1949

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$: Total	Hardness as $CaCO_3$: Non carbonate
Oct. 1-10, 1948	361	63	15	7.4	299	2.9	--	.02	.00	36	14	1.9		94	63	4.2	.2	3.0	180	147	70
Oct. 11-20	347	57	5	7.4	263	--	--	--	--	--	--	--		98	41	4	--	3.2	--	--	--
Oct. 21-31	239	52	5	7.3	227	--	--	--	--	--	--	--		75	41	3	--	3.8	--	--	--
Nov. 1-10	864	53	10	7.3	215	--	--	--	--	--	--	--		65	39	--	--	3.6	--	--	--
Nov. 11-20	634	49	25	7.3	156	9.4	--	.15	.00	18	4.9	4.3		45	28	3.6	.1	3.8	99	65	28
Nov. 21-30	1,466	45	10	7.4	140	--	--	--	--	--	--	--		35	28	--	--	4.0	--	--	--
Dec. 1-10	1,499	41	7	7.4	133	--	--	--	--	--	--	--		34	26	--	--	3.8	--	--	--
Dec. 11-20	2,374	38	25	6.6	115	6.6	--	.12	.00	13	3.9	2.4		28	24	2	.0	3.8	71	48	26
Dec. 21-31	1,974	36	5	7.4	115	--	--	--	--	--	--	--		28	22	--	--	4.0	--	--	--
Jan. 1-10, 1949	3,313	37	5	7.1	107	13	--	.09	--	10	3.3	5.9		26	22	2.5	.1	4.1	79	38	17
Jan. 11-20	1,451	--	5	7.4	134	6.2	--	--	--	--	--	--		37	25	--	--	3.9	--	--	--
Jan. 21-31	3,883	40	6	7.4	110	5.7	--	--	--	--	--	--		29	22	2.1	--	3.2	--	--	--
Feb. 1-10	2,138	33	6	7.8	122	5.3	--	--	--	--	--	--		31	23	2.0	--	3.9	--	--	--
Feb. 11-20	1,967	40	6	7.4	123	6.7	--	--	--	--	--	--		34	23	2.0	--	3.3	--	--	--
Feb. 21-28	2,980	43	7	7.8	103	6.7	--	--	--	--	--	--		25	20	2.4	--	2.9	--	--	--
Mar. 1-10	1,555	38	6	7.4	132	6.7	--	--	--	--	--	--		35	25	2.4	--	3.1	--	--	--
Mar. 11-20	1,124	39	7	7.3	138	6.2	--	--	--	--	--	--		39	27	2.2	--	3.0	--	--	--
Mar. 21-31	787	48	8	7.8	160	4.4	--	--	--	--	--	--		48	31	2.2	--	3.0	--	--	--
Apr. 1-10	1,741	50	8	7.0	125	4.8	--	.23	--	14	4.3	3.2		36	24	2.2	.1	2.3	85	53	23
Apr. 11-20	1,508	54	7	7.3	115	6.2	--	--	--	--	--	--		34	22	--	--	2.3	--	--	--
Apr. 21-30	993	57	7	7.3	158	3.8	--	--	--	--	--	--		48	27	4.1	--	1.9	--	--	--
May 1-10	726	67	7	7.3	148	3.2	--	--	--	--	--	--		43	28	3.1	--	2.5	--	--	--
May 11-20	487	68	4	7.2	170	3.2	--	--	--	--	--	--		65	33	2.8	--	1.7	--	--	--
May 21-31	617	66	3	7.2	191	5.2	--	--	--	--	--	--		59	36	2.4	--	2.3	--	--	--
June 1-10	304	67	3	7.1	195	5.3	--	--	--	--	--	--		62	35	2.5	--	3.0	--	--	--
June 11-20	335	75	4	7.1	205	4.7	--	--	--	--	--	--		65	39	2.5	--	2.4	--	--	--
June 21-30	375	80	4	7.3	227	4.8	--	--	--	--	--	--		74	45	2.8	--	2.1	--	--	--
July 1-10	497	79	5	7.0	218	6.5	--	.04	--	27	8.7	1.6		76	36	2.8	.1	3.1	127	103	41
July 11, 12	595	77	7	7.5	197	--	--	--	--	--	--	--		66	35	6	--	3.9	--	--	--
July 13-20	3,298	72	11	7.1	120	8.7	--	--	--	--	--	--		37	20	2.4	--	3.9	--	--	--
July 21-31	1,243	78	6	7.0	131	7.2	--	--	--	--	--	--		41	22	2.4	--	3.4	--	--	--
Aug. 1-10	606	79	5	7.1	167	5.9	--	--	--	--	--	--		56	28	2.8	--	2.5	--	--	--
Aug. 11-20	308	79	6	7.1	186	6.4	--	--	--	--	--	--		63	29	2.9	--	2.7	--	--	--
Aug. 21-31	278	76	5	7.2	236	5.6	--	--	--	--	--	--		84	39	2.6	--	3.1	--	--	--
Sept. 1-10	228	73	6	7.4	240	5.0	--	--	--	--	--	--		83	41	2.4	--	3.0	--	--	--
Sept. 11-20	159	69	6	7.2	249	4.2	--	--	--	--	--	--		86	44	2.6	--	2.8	--	--	--
Sept. 21-30	158	65	7	7.4	259	2.8	--	.04	--	30	11	3.1		88	46	2.9	.1	3.0	156	120	48
Average	1,167	57	7	7.3	171	5.8	--	--	--	--	--	--		53	31	2.8	--	3.1	--	--	--

CODORUS CREEK NEAR YORK, PA.

Chemical analyses, in parts per million, water year October 1948 to September 1949

Date of collection	Mean discharge (second feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chlorids (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Non carbonate
Oct. 1-10, 1948	97	60	80	7.1	422	6.0	—	.06	--	28	5.3	60	7.2	162	29	41	.1	.1	257	92	0
Oct. 11-20	80	56	80	7.1	387	6.8	—	.12	—	30	5.4	47	5.1	146	26	38	.1	.1	238	97	0
Oct. 21-31	66	51	60	7.0	440	7.2	—	.08	—	26	5.8	58	6.7	147	32	46	.1	.1	266	89	0
Nov. 1-10	113	56	50	6.9	354	6.0	—	.10	--	26	5.6	38	7.4	126	26	32	.1	.1	214	88	0
Nov. 11-20	92	49	80	7.0	339	4.0	—	.08	--	30	5.5	28	3.0	124	19	30	.0	.2	207	97	0
Nov. 21-30	168	48	40	7.0	263	5.6	—	.18	—	25	4.9	14	3.0	90	24	19	.0	2.5	159	83	9
Dec. 1-10	220	44	30	6.9	212	5.4	—	.17	--	21	4.7	15	2.7	68	22	14	.0	5.7	130	72	16
Dec. 11-20	274	41	25	6.9	202	4.8	—	.04	--	20	4.9	16	2.4	64	21	13	.0	9.4	128	70	18
Dec. 21-31	503	36	30	7.0	204	6.4	—	.16	--	21	4.7	6.7	3.1	68	17	10	.0	9.7	128	72	16
Jan. 1-10, 1949	918	42	12	7.1	179	7.2	—	.12	--	19	4.4	5.4	2.8	54	18	7.0	.0	16	109	88	21
Jan. 11-20	359	42	17	7.1	210	7.4	—	.08	—	20	4.8	11	2.4	64	17	12	.1	17	127	70	17
Jan. 21-31	723	42	12	7.0	189	6.6	—	.08	--	19	4.5	7.5	3.4	58	18	9.0	.1	15	114	88	20
Feb. 1-10	550	40	20	7.0	179	7.0	--	.05	—	18	4.4	6.2	2.6	52	17	8.0	.0	14	109	83	20
Feb. 11-20	493	44	20	7.1	183	6.8	--	.05	--	18	4.5	7.9	2.0	54	17	10	.0	14	111	83	19
Feb. 21-28	448	45	17	7.2	182	8.8	--	.03	--	17	4.5	10	1.7	54	16	11	.0	14	112	61	17
Mar. 1-10	323	42	16	7.0	193	6.5	--	.05	—	18	4.5	13	1.7	57	17	12	.0	15	117	83	17
Mar. 11-20	261	41	18	7.0	202	6.7	--	.07	--	19	4.5	13	1.9	62	16	14	.0	13	121	68	15
Mar. 21-31	243	54	28	7.0	214	6.1	—	.06	--	19	4.4	15	1.5	67	18	15	.1	10	138	68	11
Apr. 1-10	286	51	15	7.1	186	6.7	—	.05	--	18	4.2	14	1.8	59	16	12	.0	10	115	82	14
Apr. 11-20	421	53	15	7.1	170	7.2	--	.10	--	19	4.1	10	2.0	59	14	8.5	.2	10	108	84	18
Apr. 21-30	290	58	20	6.8	182	6.7	--	.05	--	19	4.2	8.0	1.4	55	17	12	.1	9.9	114	85	19
May 1-10	268	64	20	7.0	169	6.5	--	.04	--	18	4.1	5.5	1.4	56	13	10	.0	8.7	108	62	16
May 11-20	227	66	20	7.2	181	6.8	--	.05	--	18	4.1	7.5	1.8	52	14	14	.0	11	115	62	19
May 21-31	191	62	28	7.1	202	8.8	--	.04	--	18	3.5	16	3.8	85	16	14	.1	8.3	122	59	6
June 1-10	110	69	7	6.9	251	4.8	—	.05	—	22	4.0	22	4.8	81	20	23	.1	3.4	152	71	5
June 11-20	999	75	8	6.8	284	5.5	--	.05	--	22	3.9	26	4.4	94	20	28	.1	3.0	188	71	0
June 21-26, 29, 30	80	79	12	6.4	333	4.1	--	.08	--	26	5.1	37	1.9	114	16	34	.4	1.8	203	88	0
June 27, 28	91	78	12	8.5	184	3.7	--	--	--	--	--	--	--	70	17	13	--	8.6	128	--	--
July 1, 2	72	78	5	6.5	328	3.5	--	--	--	--	--	--	--	109	19	37	--	2.1	197	--	--
July 3-10	102	79	4	6.7	178	4.3	--	.09	--	20	4.7	12	2.2	78	12	10	.4	3.7	108	89	7
July 11-20	311	78	6	6.5	211	4.1	—	.13	--	20	4.5	16	2.0	71	18	18	.2	5.4	131	88	10
July 21-29	111	82	38	6.6	275	3.6	--	.08	--	24	5.6	26	2.4	98	20	23	.3	3.6	186	83	3
July 30, 31	283	80	4	6.5	191	3.9	--	--	--	--	--	--	--	83	12	11	--	.8	110	--	--
Aug. 1, 5	161	78	25	6.8	171	6.1	--	.08	--	17	4.5	--	--	55	--	10	--	3.8	115	81	16
Aug. 2-4, 6-10	91	80	45	7.3	301	6.8	--	.08	--	26	5.4	24	4.0	98	23	26	.1	1.8	180	87	8
Aug. 11-18, 20	59	77	22	7.2	398	6.2	--	.10	--	31	8.0	41	4.2	138	27	42	.1	.3	245	102	0
Aug. 19	77	71	22	8.7	206	8.4	--	--	--	--	--	--	--	56	20	20	--	3.8	--	81	16
Aug. 21-31	57	76	21	7.1	439	6.0	—	.12	--	30	6.0	47	4.8	150	30	45	.1	.3	278	100	0
Sept. 1-10	50	70	24	7.0	402	6.3	--	.10	--	30	5.9	40	5.1	138	26	40	.1	.4	257	99	0
Sept. 14, 16-20	53	70	27	7.5	381	3.8	--	.15	--	30	6.8	33	4.5	113	23	39	.2	.4	231	102	9
Sept. 12, 13, 15	40	72	26	7.2	561	4.2	—	.15	--	37	9.0	56		138	38	71	.2	.3	346	129	18
Sept. 21-27, 29	56	62	24	7.2	450	3.2	--	.08	--	29	7.2	51	4.6	142	29	42	.2	.4	279	102	0
Sept. 28, 30	70	60	24	7.3	265	3.0	—	.08	—	24	5.7	17		87	22	17	--	2.0	183	83	12
Average	245	57	25	7.0	266	5.7	—	.08	—	23	5.0	23	3.3	88	20	22	.1	5.9	165	77	—

PVP 7.12, 1/6/
Inc. 2.4.7
APRIL 1952
COMMERCE
GRAPHS

CONESTOGA CREEK AT LANCASTER, PA.

Chemical analyses, in parts per million, water year October 1947 to September 1948

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (micromhoe at 25°C.)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$	
																		Total	Non-carbonate
Oct. 1-10, 1947	76	57	2	7.9	380	4.6	0.04	51	14	4.2		180	23	7.2	0.1	15	218	185	50
Oct. 11-20	68	61	3	7.9	390	4.6	.05	52	15	7.8		198	24	7.2	.1	13	222	191	51
Oct. 21-31	1,181	59	5	7.8	364	4.8	.04	48	13	11		181	25	7.8	.1	15	210	173	31
Nov. 1-10	575	52	17	7.6	259	8.4	.10	32	8.6	8.5		103	26	7.6	.1	14	161	115	31
Nov. 11-20	485	44	7	7.8	284	10	.11	38	9.6	5.4		122	24	6.0	.2	15	176	134	41
Nov. 21-30	435	41	5	7.6	299	6.4	.05	42	10	5.8		130	26	7.2	.1	18	182	146	39
Dec. 1-10	270	38	3	7.8	336	7.6	.03	46	12	6.9		154	24	7.5	.1	21	199	164	41
Dec. 11-20	243	36	3	7.9	326	7.2	.05	45	12	5.9		148	25	7.8	.0	20	191	162	47
Dec. 21-31	177	33	5	7.9	343	5.6	.09	48	13	5.9		164	24	7.8	.1	19	205	173	49
Jan. 1-10, 1948	512	36	7	7.5	291	8.6	.02	40	11	3.2		128	24	5.5	.2	17	175	145	40
Jan. 11-20	263	33	5	7.7	342	8.6	.03	48	13	3.1		158	24	6.5	.1	20	203	173	44
Jan. 21-31	198	33	3	7.5	360	10	.07	48	14	4.3		166	25	6.0	.0	20	214	177	41
Feb. 1-10	167	32	4	7.5	363	9.4	.07	48	14	4.6		169	23	6.1	.0	20	216	177	39
Feb. 11-20	881	33	10	7.4	271	13	.10	35	10	3.8		117	21	5.0	.1	15	166	128	33
Feb. 21-29	874	38	20	7.5	259	13	.19	33	9.3	6.5		109	23	4.8	.1	18	165	121	31
Mar. 1-10	778	38	3	7.5	277	9.0	.05	35	10	7.8		121	22	4.6	.0	21	170	128	29
Mar. 11-20	663	44	3	7.6	290	8.4	.04	37	11	4.7		127	23	4.9	.0	16	177	138	34
Mar. 21-31	717	50	5	7.6	272	9.1	.05	35	9.8	4.2		118	21	4.9	.0	14	166	128	30
Apr. 1-10	697	52	5	7.7	274	8.1	.05	36	10	5.2		121	20	4.9	.0	19	163	131	32
Apr. 11-20	862	50	4	7.7	255	11	.05	33	9.4	3.8		113	20	4.4	.0	12	156	121	28
Apr. 21-30	537	54	3	7.8	293	5.7	.04	38	11	7.1		138	19	4.6	.0	20	173	140	27
May 1-10	979	55	4	7.3	255	9.8	.03	32	8.7	5.5		113	18	4.6	.0	12	180	116	23
May 11-20	993	59	3	7.4	255	22	.04	32	8.7	5.3		113	18	4.4	.0	12	202	116	23
May 21-31	703	60	4	7.5	284	8.4	.05	35	9.8	6.2		128	18	5.0	.0	13	197	128	23
June 1-10	466	65	2	7.3	318	11	.14	42	12	4.2		148	20	4.8	.0	18	224	154	33
June 11-20	572	65	3	7.3	301	9.6	.16	38	10	9.8		140	19	4.5	.1	20	208	136	21
June 21-30	484	69	2	7.2	304	11	.16	37	11	8.9		140	20	4.2	.1	19	213	138	23
July 1-10	293	70	2	7.3	354	16	.15	46	13	6.2		168	20	4.5	.0	21	218	168	31
July 11-20	222	71	2	7.4	369	15	.06	48	15	2.5		172	20	5.8	.0	21	276	181	41
July 21-31	291	73	9	7.2	328	11	.06	43	12	2.4		150	19	5.5	.1	14	214	157	34
Aug. 1-10	373	68	6	7.3	325	8.4	.08	42	13	6.3		152	23	6.2	.1	18	200	158	34
Aug. 11-20	269	68	4	7.5	352	6.4	.08	45	14	5.3		167	21	6.8	.1	16	214	170	33
Aug. 21-31	232	72	6	7.6	356	9.2	.08	45	14	8.5		176	21	6.5	.1	16	221	170	26
Sept. 1-10	169	70	6	7.8	389	4.8	.06	51	16	6.2		192	23	7.2	.2	18	253	193	36
Sept. 11-20	146	68	5	7.6	367	5.2	.06	47	15	5.9		178	21	6.6	.1	18	226	179	33
Sept. 21-30	115	64	4	7.9	394	4.0	.06	51	16	8.6		198	23	7.4	.2	18	254	193	31
Average	454	53	5	—	319	9.0	0.07	42	12	5.9		147	22	5.9	0.1	17	200	154	34

CONESTOGA CREEK AT LANCASTER, PA.

Chemical analyses, in parts per million, water year October 1948 to September 1949

Date of collection	Mean discharge (second feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$	
																				Total	Non carbonate
Oct. 1-10, 1948	139	58	4	7.8	371	4.0	--	.04	--	47	14	9.0		178	24	7.2	.2	16	231	175	29
Oct. 11-20	124	55	4	7.8	374	5.2	--	.04	--	48	15	7.7		184	22	7.8	.2	16	234	181	31
Oct. 21-31	103	50	5	7.8	369	3.2	--	.08	--	48	14	9.9		186	22	7.4	.1	16	228	177	30
Nov. 1-10	196	53	7	7.3	329	7.6	--	.04	--	40	13	7.0		153	22	6.2	.1	14	194	153	28
Nov. 11-20	146	48	6	7.5	349	9.0	--	.04	--	44	14	2.7		158	23	5.9	.1	14	211	167	38
Nov. 21-30	270	44	7	7.4	294	10	--	.04	--	34	11	7.9		128	24	6.4	.1	10	179	130	25
Dec. 1-10	251	38	6	7.2	316	13	--	.02	--	41	12	4.7		141	26	6.6	.1	12	197	152	36
Dec. 11-20	303	35	3	7.4	332	10	--	.04	--	43	13	4.2		149	25	6.6	.1	15	207	161	39
Dec. 21-31	610	--	8	7.6	329	12	--	.04	--	41	12	5.8		142	27	5.8	.1	14	198	152	35
Jan. 1-10, 1949	1,513	37	11	7.4	286	9.2	--	.07	--	38	10	1.7		120	23	5.2	.1	12	184	136	38
Jan. 11-20	704	38	7	7.4	335	11	--	.04	--	45	12	9.5		172	22	6.1	.1	12	212	162	21
Jan. 21-31	1,023	36	10	7.4	281	9.4	--	.06	--	37	10	3.4		122	22	5.6	.1	12	178	133	33
Feb. 1-10	890	35	8	7.3	292	11	--	.06	--	39	11	2.8		131	23	4.8	.0	13	181	143	35
Feb. 11-20	893	39	8	7.4	292	12	--	.06	--	39	11	2.7		129	24	4.9	.1	13	184	143	37
Feb. 21-28	934	41	8	7.4	279	12	--	.06	--	37	11	2.4		122	23	5.2	.1	14	178	138	38
Mar. 1-10	643	38	10	7.2	309	8.7	--	.16	--	41	12	2.2		139	23	5.2	.0	14	186	152	38
Mar. 11-20	472	36	5	7.8	322	8.4	--	.17	--	43	12	4.2		148	21	5.2	.0	19	210	157	35
Mar. 21-31	428	48	6	7.7	311	7.8	--	.17	--	42	12	2.3		143	19	5.2	.1	18	195	164	37
Apr. 1-10	459	45	5	7.4	283	7.4	--	.19	--	36	10	5.7		128	20	4.8	.1	13	184	131	26
Apr. 11-20	528	48	7	7.3	267	7.9	--	.08	--	34	9.5	3.1		116	19	4.8	.1	11	183	124	29
Apr. 21-30	565	62	9	7.6	262	15	--	.08	--	33	9.4	5.2		118	19	4.8	.1	11	187	121	24
May 1-10	418	59	7	7.5	286	10	--	.08	--	36	10	7.0		132	20	5.1	.1	12	202	131	23
May 11-20	283	57	15	7.7	315	7.9	--	.04	--	42	12	3.6		150	19	5.5	.1	14	202	154	31
May 21-31	279	58	4	7.6	309	10	--	.02	--	41	11	4.3		144	20	5.8	.1	12	195	148	30
June 1-10	177	63	15	7.7	347	7.4	--	.04	--	47	13	4.6		170	21	6.2	.1	13	213	171	31
June 11-20	151	70	8	7.6	361	6.8	--	.04	--	50	14	4.0		176	24	7.2	.1	14	220	182	38
June 21-30	121	72	8	7.4	369	9.1	--	.06	--	47	15	6.3		176	25	7.1	.1	15	219	179	35
July 1-10	126	73	6	7.7	364	10	--	.04	--	47	15	8.5		192	23	7.1	.1	7.4	219	179	22
July 11-20	410	69	8	7.6	258	8.2	--	.10	--	32	9.5	8.2		118	21	6.4	.1	11	172	119	22
July 21-31	163	75	8	7.7	339	9.3	--	.12	--	44	13	11		172	23	7.0	.1	14	211	163	22
Aug. 1-10	121	74	8	7.9	350	7.1	--	.04	--	45	13	10		178	21	6.5	.1	13	222	166	20
Aug. 11-20	92	71	8	7.8	382	7.6	--	.10	--	50	15	7.8		192	26	7.1	.1	11	235	186	29
Aug. 21-31	102	75	8	7.7	371	8.3	--	.12	--	49	14	10		192	23	6.9	.1	13	233	180	22
Sept. 1-10	83	65	6	7.6	396	10	--	.04	--	51	13	7.0		192	17	7.0	.2	13	246	181	23
Sept. 11-20	76	63	6	7.6	392	8.4	--	.06	--	52	14	4.9		191	20	7.1	.1	13	234	187	31
Sept. 21-30	69	58	7	7.7	388	7.7	--	.04	--	50	14	7.4		190	21	7.1	.1	13	232	182	27
Average	397	53	7	7.6	328	8.9	--	.07	--	43	12	5.8		155	22	6.1	.1	13	205	157	30

PY.P712, 1/9
F.no. 241
APRIL 1952
COMMERCE
APHS

OHIO RIVER BASIN

ALLEGHENY RIVER AT WARREN, PA.

Chemical anelyeee, in perts per million, weter yeer October 1948 to September 1949

Date of collection	Mean discherge (eecond-feet)	Tempereture (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Iron (Fe)	Mengenese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Ne)	Potaseium (K)	Bicarbonate (HCO_3)	Sulfete (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrete (NO_3)	Dieselved eolids	Hardneee ee $CaCO_3$ Total	Hardneee ee $CaCO_3$ Noncerbonate
Oct. 1-10, 1948---	307	58	4	7.1	896	1.6	.06	--	56	9.9	102	5.8	80	27	220	.1	.8	532	180	115
Oct. 11-20--------	930	51	5	7.0	813	1.6	.10	--	50	8.7	96	5.9	69	26	195	.2	1.2	476	160	104
Oct. 21-31--------	713	49	5	7.0	559	2.0	.08	--	45	6.6	58	8.2	62	24	120	.4	1.0	323	139	89
Nov. 1-10---------	621	52	15	7.1	716	1.2	.04	--	45	8.7	74	1.4	76	25	160	.1	.8	421	148	86
Nov. 11-20--------	1,691	44	15	7.0	492	2.0	.08	--	29	6.4	51	1.4	47	21	110	.0	1.3	293	99	60
Nov. 21-30--------	3,043	43	15	6.9	296	4.4	.08	--	21	4.7	27	2.0	30	21	55	.0	1.6	179	72	47
Dec. 1-10---------	1,693	37	15	7.0	376	2.4	.08	--	24	6.4	37	1.4	40	21	80	.0	1.4	225	86	53
Dec. 11-20--------	2,978	36	15	6.9	308	3.2	.10	--	19	4.4	30	1.6	29	19	60	.0	1.5	186	66	42
Dec. 21-31--------	3,342	33	8	6.9	318	4.2	.08	--	21	4.2	29	1.7	32	18	60	.1	1.5	179	70	43
Jan. 1-10, 1949---	7,706	35	3	6.7	178	5.4	.14	--	12	3.0	15	1.9	18	15	31	.0	1.7	103	42	28
Jan. 11-20--------	5,176	37	8	7.0	207	5.2	.08	--	14	3.1	16	1.5	22	15	38	.1	1.6	120	48	30
Jan. 21-31--------	7,257	36	10	6.8	183	5.4	.07	--	12	2.8	15	1.7	20	15	33	.1	1.7	105	41	25
Feb. 1-10---------	3,786	33	10	7.0	228	5.6	.08	--	16	3.5	18	2.6	26	15	42	.1	2.1	132	54	33
Feb. 11-20--------	6,038	38	5	6.8	219	4.7	.04	--	16	3.3	18	1.0	24	15	40	.0	1.5	131	53	34
Feb. 21-28--------	4,475	39	7	7.1	210	5.1	.06	--	14	3.3	16	1.0	24	15	35	.1	1.5	123	48	29
Mar. 1-10---------	4,440	36	5	6.9	215	4.1	.07	--	15	3.3	19	1.0	26	15	38	.1	1.3	127	51	30
Mar. 11-20--------	3,041	35	7	7.0	260	3.4	.11	--	18	3.8	22	1.0	28	16	48	.0	1.0	150	60	38
Mar. 21-31--------	6,045	47	14	7.0	192	3.6	.11	--	13	3.0	18	1.1	21	14	35	.0	1.3	111	45	28
Apr. 1-10---------	7,734	44	10	6.4	156	4.7	.06	--	12	2.7	15	1.0	19	14	27	.1	1.6	101	41	26
Apr. 11-20--------	7,289	--	5	6.5	155	4.5	.09	--	12	2.8	12	.8	20	15	26	.1	1.7	100	41	25
Apr. 21-30--------	7,403	52	7	6.3	152	4.6	.11	--	12	2.6	11	1.0	20	14	26	.1	1.5	101	41	24
May 1-10----------	3,226	62	10	7.2	238	2.8	.05	--	18	3.6	22	1.0	32	14	44	.0	1.0	143	60	34
May 11-20---------	1,500	63	7	6.6	368	2.0	.11	--	27	5.0	31	1.0	46	17	75	.1	2.0	221	88	50
May 21-31---------	5,917	59	9	6.8	205	4.8	.08	--	14	2.8	21	3.1	29	14	42	.0	1.4	132	46	23
June 1-10---------	1,404	68	6	7.2	340	2.2	.10	--	24	4.0	31	5.3	49	15	72	.0	.7	204	76	36
June 11-20--------	693	75	7	7.2	503	4.0	.10	--	34	5.7	50	6.2	67	18	108	.1	.8	304	108	49
June 21-30--------	633	79	8	7.3	561	4.4	.06	--	36	6.2	60	6.1	68	20	125	.1	.6	345	115	60
July 1-10---------	498	78	6	6.5	562	2.0	.10	--	36	9.6	62	6.4	66	21	127	.1	.5	299	129	75
July 11-20--------	355	79	6	6.5	685	1.6	.10	--	41	10	79	5.2	68	21	160	.1	.9	439	143	88
July 21-31--------	638	77	7	6.6	616	2.2	.20	--	36	9.4	73	4.0	58	24	146	.1	1.0	393	128	81
Aug. 1-10---------	358	75	12	7.2	590	5.0	.05	--	37	9.2	61	2.9	70	20	125	.1	.7	365	130	73
Aug. 11-20--------	329	74	10	7.2	747	2.9	.05	--	46	9.0	83	3.0	70	21	172	.1	.3	481	152	94
Aug. 21-31--------	422	72	10	7.3	824	3.9	.05	--	46	10	92	3.8	68	24	195	.1	.2	541	156	100
Sept. 1-10--------	413	67	8	7.3	756	3.6	.05	--	44	8.5	82	3.5	68	25	175	.1	.1	489	145	89
Sept. 11-20-------	363	66	6	7.6	867	3.2	.05	--	52	10	97	3.7	72	27	210	.1	.1	573	171	112
Sept. 21-30-------	522	59	11	7.4	752	2.3	.10	--	48	12	83	1.8	70	33	170	.1	.9	421	169	112
Average------	2,863	55	9	7.0	437	3.5	.08	--	28	5.9	45	2.8	45	19	95	.1	1.1	266	94	57

Allagheny River at Kittanning, Pa.

Chemical analyses, in parts per million, water year October 1946 to September 1947

Date of collection	Mean discharge (second feet)	Temperature (°F.)	Color	pH	Specific conductance (Kx10^6 at 25°C.) 1/	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium and potassium (Na+K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$	
																	Total	Non-carbonate
Oct. 1-10, 1946	1,537	—	16	7.3	49.3	1.6	0.02	40	8.5	43	59	73	73	—	0.2	288	135	86
Oct. 11-20	3,566	—	26	7.4	52.1	1.6	.10	40	8.5	48	59	72	82	—	.2	304	135	96
Oct. 21-31	6,212	—	12	7.0	37.1	3.8	.06	31	6.5	29	42	59	50	—	.4	224	104	70
Nov. 1-10	3,629	—	10	7.1	32.8	1.8	.02	27	6.1	26	40	51	44	—	.2	195	92	60
Nov. 11-20	4,445	—	15	7.2	32.9	1.8	.09	28	6.2	28	53	48	45	—	.3	192	95	52
Nov. 21-30	6,840	—	10	7.2	32.3	2.9	.09	27	5.9	27	50	48	42	—	.8	184	92	51
Dec. 1-10	6,122	—	10	7.1	24.9	3.8	.07	21	4.9	18	36	41	28	—	1.3	140	73	43
Dec. 11-20	14,070	—	6	6.8	22.5	3.4	.06	20	4.8	14	30	39	24	—	1.2	130	70	45
Dec. 21-31	14,920	—	4	7.0	22.1	4.4	.10	19	4.8	13	29	39	22	—	1.0	128	67	43
Jan. 1-10, 1947	30,940	—	4	6.7	13.7	4.1	.07	12	3.4	7.5	16	28	12	—	1.5	81	44	31
Jan. 11-20	25,210	—	5	6.8	16.6	4.2	.10	14	3.8	7.3	18	31	13	—	1.4	91	51	36
Jan. 21-31	29,820	—	4	6.7	12.4	4.1	.09	11	3.2	5.8	14	27	9.0	—	1.3	76	41	29
Feb. 1-10	29,300	—	6	6.8	12.6	4.3	.12	12	3.3	5.4	15	28	9.0	—	1.3	76	44	31
Feb. 11-20	9,646	—	4	6.7	19.8	5.0	.06	18	4.3	11	27	41	14	—	1.6	119	63	40
Feb. 21-28	5,854	—	3	6.8	22.8	4.6	.06	21	5.4	14	33	46	20	—	1.5	137	75	48
Mar. 1-10	5,437	—	3	6.8	25.2	4.6	.06	24	5.9	14	38	49	22	—	1.2	149	84	53
Mar. 11-20	23,210	—	4	6.6	21.1	3.4	.08	19	4.8	12	27	39	20	—	1.3	124	67	45
Mar. 21-31	37,130	—	4	6.5	12.6	4.1	.05	12	2.9	6.2	18	24	10	—	1.6	76	42	27
Apr. 1-10	70,090	—	10	6.9	10.6	5.4	.12	10	2.4	5.6	16	20	8.2	—	2.0	66	35	22
Apr. 11-20	33,780	—	9	6.9	11.6	4.5	.07	12	2.7	5.4	21	21	8.9	—	1.4	70	41	24
Apr. 21-30	40,970	—	10	7.0	12.3	4.7	.08	12	2.9	6.6	22	23	9.5	—	1.0	76	42	24
May 1-10	35,830	—	12	7.0	12.6	4.8	.06	12	3.0	7.1	22	24	10	—	.7	76	42	24
May 11-20	27,700	—	9	7.1	14.1	4.0	.11	13	3.3	9.2	24	29	11	—	.8	83	46	26
May 21-31	40,220	—	10	7.0	12.6	3.2	.08	12	3.1	6.6	26	22	8.5	—	.9	76	43	21
June 1-10	43,730	—	12	7.1	12.0	3.4	.15	12	2.7	7.4	28	20	9.0	—	.8	74	41	18
June 11-20	22,750	—	17	7.1	14.0	3.6	.08	14	3.2	6.6	28	24	9.8	—	.8	84	48	25
June 21-30	6,381	—	8	7.3	19.2	1.7	.04	18	4.2	12	39	31	16	—	.5	111	62	30
July 1-10	3,719	—	7	7.3	25.3	1.2	.03	24	5.4	16	46	40	26	—	.4	151	82	44
July 11-20	5,154	—	8	7.2	30.6	2.4	.01	28	6.3	21	54	47	34	—	.4	177	96	52
July 21-31	8,899	—	10	7.1	24.0	5.2	.01	24	4.8	14	50	31	25	—	.8	143	80	39
Aug. 1-10	3,506	—	9	7.1	23.0	2.2	.01	24	4.9	12	46	35	23	—	.7	139	80	42
Aug. 11-20	2,394	—	10	7.2	29.0	2.0	.01	28	5.7	22	67	39	32	—	.6	167	93	38
Aug. 21-31	4,710	—	8	7.1	32.5	3.2	.02	29	6.1	24	50	50	40	—	.6	192	97	56
Sept. 1-10	4,938	—	10	7.2	34.7	2.8	.12	29	6.2	29	50	48	60	—	.4	208	98	57
Sept. 11-20	3,576	—	7	7.1	32.8	2.4	.01	28	6.0	24	51	43	43	—	.5	190	94	53
Sept. 21-30	2,953	—	10	7.1	33.2	2.2	.06	29	6.3	24	45	50	43	—	.4	194	98	61
Average	17,620	—	9	7.0	23.5	3.4	0.07	21	4.8	16	36	38	26	—	0.9	139	72	43

1/ To convert to micromhos at 25°, multiply by 10.

PVP712, 1/9
Exc. 24J
APRIL 1952
OMMERCE
APHS

OHIO RIVER BASIN--Continued

ALLEGHENY RIVER AT KITTANNING, PA.

Chemical analyses, in parts per million, water year October 1947 to September 1948

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (micromhos at 25°C.)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$	
																		Total	Noncarbonate
Oct. 1-10, 1947	2,041	66	5	7.1	368	2.4	0.03	31	6.9	29		56	47	52	0.1	0.4	202	106	60
Oct. 11-20	1,400	64	7	7.1	393	--	--	--	--	--		61	49	55	--	--	--	--	--
Oct. 21-31	1,551	62	7	7.1	411	--	--	--	--	--		63	57	55	--	--	--	--	--
Nov. 1-10	2,129	59	9	7.2	463	--	--	--	--	--		62	69	63	--	--	--	--	--
Nov. 11-20	4,531	48	12	7.1	434	--	--	--	--	--		54	63	61	--	--	--	--	--
Nov. 21-30	7,251	46	12	7.0	374	--	--	--	--	--		48	54	53	--	--	--	--	--
Dec. 1-10	14,986	42	12	6.8	270	--	--	--	--	--		36	40	35	--	--	--	--	--
Dec. 11-20	17,070	38	17	6.7	178	--	--	--	--	--		24	32	17	--	--	--	--	--
Dec. 21-31	7,182	38	13	7.0	201	--	--	--	--	--		29	34	21	--	--	--	--	--
Jan. 1-10, 1948	14,586	38	15	6.8	208	4.7	.11	18	4.3	14		26	39	21	.1	1.7	122	63	41
Jan. 11-20	6,432	38	12	7.0	227	--	--	--	--	--		30	40	22	--	--	--	--	--
Jan. 21-31	4,283	37	14	7.1	269	--	--	--	--	--		38	48	28	--	--	--	--	--
Feb. 1-10	3,554	36	20	7.1	303	--	--	--	--	--		48	47	35	--	--	--	--	--
Feb. 11-20	35,310	36	15	7.4	229	--	--	--	--	--		34	39	26	--	--	--	--	--
Feb. 21-29	36,389	37	16	6.7	128	--	--	--	--	--		14	28	10	--	--	--	--	--
Mar. 1-10	24,660	38	10	6.7	143	--	--	--	--	--		20	28	12	--	1.5	--	--	--
Mar. 11-20	27,655	38	16	6.7	170	--	--	--	--	--		25	31	15	--	1.4	--	--	--
Mar. 21-31	69,927	42	40	6.6	103	--	--	--	--	--		18	20	6	--	1.4	--	--	--
Apr. 1-10	29,480	47	11	6.5	137	4.6	.08	13	3.2	7.8		20	27	12	.1	1.1	82	46	29
Apr. 11-20	58,970	48	13	6.2	116	--	--	--	--	--		16	25	8	--	1.5	--	--	--
Apr. 21-30	26,590	52	11	6.5	144	--	--	--	--	--		19	32	9	--	1.0	--	--	--
May 1-10	22,050	54	5	6.6	161	--	--	--	--	--		19	35	14	--	.6	--	--	--
May 11-20	23,800	57	7	6.6	153	--	--	--	--	--		23	29	12	--	.7	--	--	--
May 21-31	17,355	58	8	6.7	151	--	--	--	--	--		25	24	14	--	.7	--	--	--
June 1-10	8,597	64	5	6.9	188	--	--	--	--	--		31	31	18	--	.6	--	--	--
June 11-20	10,064	65	7	6.9	204	--	--	--	--	--		30	38	18	--	.7	--	--	--
June 21-30	11,446	65	5	6.5	204	--	--	--	--	--		28	37	20	--	.7	--	--	--
July 1-10	6,397	71	5	6.6	223	--	--	--	--	--		33	36	23	--	.8	--	--	--
July 11-20	4,691	72	10	6.8	258	--	--	--	--	--		42	40	28	--	.4	--	--	--
July 21-31	7,947	72	7	6.7	249	--	--	--	--	--		36	41	27	--	.7	--	--	--
Aug. 1-10	5,321	72	10	6.8	262	--	--	--	--	--		38	43	30	--	.6	--	--	--
Aug. 11-20	6,254	72	5	7.1	251	--	--	--	--	--		28	50	26	--	.6	--	--	--
Aug. 21-31	3,014	72	7	7.2	302	--	--	--	--	--		43	48	36	--	.4	--	--	--
Sept. 1-10	1,573	72	15	7.2	343	2.4	.02	30	6.9	23		50	55	39	.2	.4	195	103	62
Sept. 11-20	1,237	72	10	7.1	398	--	--	--	--	--		67	63	48	--	.6	--	--	--
Sept. 21-30	1,210	69	10	7.2	430	--	--	--	--	--		61	69	52	--	.3	--	--	--
Average	14,640	54	11	--	251	--	--	--	--	--		36	41	28	--	--	--	--	--

Chemical analyses, in parts per million, water year October 1948 to September 1949

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$	
																			Total	Non-carbonate
Oct. 1-10, 1948	1,124	--	15	7.4	467	2.1	.03	0.0	37	8.5	41		62	75	62	.2	.6	266	127	76
Oct. 11-20	3,633	--	10	7.2	488	--	--	--	--	--	--		64	75	69	--	.3	--	--	--
Oct. 21-31	4,564	--	13	7.0	306	--	--	--	--	--	--		50	43	38	--	1.0	306	--	--
Nov. 1-10	3,069	--	25	7.0	346	--	--	--	--	--	--		50	54	38	--	.4	--	--	--
Nov. 11-20	5,532	--	20	7.0	365	2.4	.04	.0	32	6.8	30		58	53	50	.1	.6	207	108	60
Nov. 21-30	13,160	--	25	7.1	282	--	--	--	--	--	--		38	42	34	--	.8	--	--	--
Dec. 1-10	9,361	--	20	7.0	229	--	--	--	--	--	--		28	42	24	--	1.2	--	--	--
Dec. 11-20	20,180	--	20	7.0	217	--	--	--	--	--	--		25	40	23	--	1.5	--	--	--
Dec. 21-31	12,930	--	15	7.0	189	--	--	--	--	--	--		22	39	20	--	1.4	--	--	--
Jan. 1-10, 1949	35,830	--	15	7.0	154	--	--	--	--	--	--		16	30	13	--	1.4	--	--	--
Jan. 11-20	20,890	--	15	7.2	163	5.2	.08	.0	14	3.9	7.8		18	31	14	.1	1.2	86	51	36
Jan. 21-31	38,050	--	15	7.0	142	--	--	--	--	--	--		14	30	12	--	1.4	--	--	--
Feb. 1-10	19,270	--	5	7.0	150	--	.0	--	--	--	--		14	39	12	.2	1.7	--	--	--
Feb. 11-20	25,840	--	10	7.0	169	--	.02	--	--	--	--		19	38	7	.1	1.5	--	--	--
Feb. 21-28	24,540	--	5	6.8	145	--	.0	--	--	--	--		15	38	11	.1	2.9	--	--	--
Mar. 1-10	18,030	--	5	6.9	166	--	.02	--	--	--	--		20	37	14	.2	1.4	--	--	--
Mar. 11-20	14,530	--	5	7.1	171	--	.04	--	--	--	--		20	36	16	.1	1.0	--	--	--
Mar. 21-31	26,630	--	10	6.6	154	--	.04	--	--	--	--		22	33	12	.0	.8	--	--	--
Apr. 1-10	28,540	--	10	7.0	144	5.4	.0	.0	13	3.4	7.8		20	29	11	.2	1.0	83	46	30
Apr. 11-20	20,330	--	20	6.5	54	--	.04	--	--	--	--		20	33	18	.1	1.0	--	--	--
Apr. 21-30	26,020	--	20	6.4	146	--	.03	--	--	--	--		19	35	11	.0	1.0	--	--	--
May 1-10	12,790	--	5	6.7	158	--	--	--	--	--	--		24	30	15	--	.5	--	--	--
May 11-20	5,575	--	5	7.1	227	--	--	--	--	--	--		34	39	23	--	.4	--	--	--
May 21-23	27,900	--	10	7.4	215	--	--	--	--	--	--		32	38	24	--	.6	--	--	--
May 24-31	25,550	--	10	7.4	141	--	--	--	--	--	--		20	27	15	--	.6	--	--	--
June 1-10	5,904	--	6	7.0	183	--	--	--	--	--	--		27	34	18	.1	.4	--	--	--
June 11-20	3,004	--	10	6.9	252	--	.0	--	--	--	--		38	44	28	.1	.4	--	--	--
June 21-30	3,078	--	5	7.1	306	--	.0	--	--	--	--		47	49	37	.1	.5	--	--	--
July 1-10	2,447	--	10	7.4	327	--	.0	--	--	--	--		51	48	41	.2	.6	--	--	--
July 11-20	2,902	--	10	7.3	332	--	.0	--	--	--	--		40	59	39	.2	.6	--	--	--
July 21-24, 26-31	4,627	--	5	7.2	306	--	.02	--	--	--	--		43	55	32	.1	.8	--	--	--
July 25	5,570	--	2	6.7	346	--	--	--	--	--	--		29	86	33	--	.8	--	--	--
Aug. 1-10	2,828	--	3	7.2	302	--	--	--	--	--	--		46	54	36	--	.7	--	--	--
Aug. 11-20	2,781	--	5	7.1	336	--	--	--	--	--	--		50	59	38	--	.6	--	--	--
Aug. 21-31	2,673	--	3	7.2	241	--	--	--	--	--	--		48	35	24	--	.9	--	--	--
Sept. 1-10	3,341	--	10	6.9	319	4.6	.03	.0	26	7.1	25		53	46	40	.1	.8	191	94	51
Sept. 11-20	1,898	--	7	7.1	378	--	--	--	--	--	--		55	52	53	--	.6	--	--	--
Sept. 21-30	2,779	--	5	7.3	388	--	--	--	--	--	--		64	58	48	--	.8	--	--	--
Average	12,647	--	11	7.0	250	--	--	--	--	--	--		35	44	28	--	.9	--	--	--

PVP 712.1 7/9
I.no. 241
APRIL 1952
COMMERCE
GAPHS

Allegheny River at Sharpsburg, Pa.
Cross-section samples for water year ended September 30, 1948

Date	Discharge (second-feet)	Station	Time	Temperature (°F.)	Color	pH	Specific conductance (Micromhoe at 25°C.)	Parts per million: Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Total hardness as $CaCO_3$
1947												
Oct. 14,——	2,020	800	12:20pm	67	2	4.35	568	0	171	52	4.3	165
		600	12:25	67	3	5.2	547	4	178	50	4.0	156
		410	12:30	67	4	5.2	546	4	166	50	3.8	162
		250	12:40	67	3	5.2	546	4	170	50	3.7	150
		100	12:40	68	5	5.1	548	6	168	50	3.8	162
Nov. 10,——	3,700	800	5:05	54	1	4.00	625	0	200	46	5.4	180
		600	5:02	54	2	4.15	616	0	193	47	4.7	183
		410	5:00	54	2	4.15	611	0	195	47	4.1	183
		250	4:58	54	1	4.20	611	0	198	49	4.3	183
		100	4:55	55	1	4.20	609	0	200	48	4.2	183
Dec. 24,——	10,800	800	9:05am	34	3	6.2	222	20	56	16	4.2	87
		600	9:10	34	3	6.2	222	24	56	20	3.8	78
		410	9:15	34	3	6.2	220	20	52	19	3.4	84
		250	9:25	34	3	6.3	221	20	50	19	3.5	78
		100	9:30	34	3	6.2	224	24	54	21	3.4	78
1948												
Jan. 16,——	7,050	800	9:50	34	2	6.0	254	12	74	19	2.5	93
		600	9:44	33	2	6.0	252	12	72	19	2.6	90
		410	9:39	33	3	6.0	249	10	73	19	2.4	93
		250	9:35	34	2	6.0	251	12	72	19	2.5	87
		100	9:32	34	3	6.0	252	12	72	19	2.4	96
Feb. 17,——	58,900	800	3:57pm	35	2	5.7	209	16	53	18	4.6	75
		600	3:54	35	3	5.8	202	10	51	18	4.4	66
		410	3:51	35	4	5.8	198	10	47	18	4.1	64
		250	3:48	36	5	6.1	202	16	46	19	3.6	62
		100	3:45	36	4	6.1	201	14	44	19	3.7	60
Mar. 16,——	16,200	800	———	--	--	---	---	--	---	--	---	---
		600	7:25pm	41	3	5.5	256	6	80	15	2.9	90
		410	7:20	41	2	5.6	252	8	76	16	2.3	90
		250	7:15	42	2	5.6	250	8	77	16	3.5	90
		100	7:10	42	4	5.6	252	8	71	16	3.9	90
Apr. 15,——	136,000	800	10:00am	46	3	5.0	150	2	52	6	3.3	52
		600	10:04	46	6	5.2	140	4	48	5	2.7	51
		410	10:06	46	6	5.2	136	3	45	7	2.3	51
		250	10:08	46	7	5.1	137	2	49	6	2.6	50
		100	10:11	46	6	5.4	135	4	42	7	2.9	50
May 14,——	29,200	800	7:50	61	5	6.1	194	10	59	12	1.0	63
		600	7:55	61	6	5.8	196	8	68	12	1.0	60
		410	8:00	61	4	6.2	185	11	66	12	1.0	64
		250	8:05	61	4	6.3	186	11	67	11	1.0	66
		100	8:10	61	1	6.3	189	12	73	13	1.0	68
June 18,——	9,080	800	11:20	73	2	5.8	270	8	93	16	1.3	96
		600	11:23	73	2	5.3	274	2	93	15	2.8	93
		410	11:25	73	4	5.5	270	4	102	14	1.3	98
		250	11:28	72	3	5.6	272	4	98	16	1.2	96
		100	11:32	73	3	5.4	270	2	94	16	1.7	94
July 20,——	5,800	800	8:21	78	3	6.1	309	12	101	20	3.1	114
		600	8:27	78	4	6.3	306	20	99	21	2.3	114
		410	8:45	78	3	6.3	304	18	94	20	2.6	117
		250	8:52	78	2	6.2	304	24	98	20	2.2	117
		100	9:02	77	3	6.2	304	16	100	20	2.4	114
Aug. 18,——	5,490	800	10:10	76	4	6.1	330	12	95	28	1.3	111
		600	10:03	76	3	6.1	324	12	100	26	1.2	120
		410	9:55	76	2	6.2	324	12	103	26	1.4	111
		250	9:40	76	2	6.1	321	12	96	26	1.3	105
		100	9:30	73	1	6.1	324	14	103	26	1.4	111
Sept. 21,—	1,580	800	8:00	75	1	3.90	673	0	246	35	4.2	174
		600	7:55	75	1	4.00	666	0	235	36	5.3	177
		410	7:50	76	1	4.00	664	0	236	36	5.0	183
		250	7:45	76	1	3.80	679	0	241	36	4.1	174
		100	7:40	76	2	4.6	632	0	240	35	0.9	174

Allegheny River at Sharpsburg, Pa.
Cross-section samples for water year September 30, 1949

Date	Discharge (second-feet)	Station	Time	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Parts per million: Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Total hardness as $CaCO_3$
1948												
Oct. 18,---	4,590	800	8:55am	56	1	4.00	718	0	281	40	1.0	218
		600	9:00	56	1	4.00	712	0	274	42	0.9	225
		410	9:00	56	3	4.00	713	0	276	38	0.9	232
		250	9:05	57	2	4.20	701	0	277	39	0.8	240
		100	9:10	56	2	4.20	697	0	273	40	1.2	225
Nov. 15,---	7,250	800	3:35pm	49	2	6.3	414	24	120	35	4.0	117
		600	3:40	49	3	6.3	415	21	119	34	2.1	111
		410	3:45	48	4	6.4	411	21	119	33	2.0	120
		250	3:50	49	4	6.1	407	20	120	32	2.0	120
		100	3:55	49	4	6.2	407	21	118	34	2.1	126
Dec. 22,---	20,200	800	4:15	36	6	3.90	260	0	69	12	1.5	93
		600	4:10	36	6	5.9	204	10	57	12	2.5	76
		410	4:05	36	12	5.6	196	8	54	12	2.0	90
		250	4:00	37	12	6.1	195	10	56	13	2.2	76
		100	3:55	38	15	6.2	203	11	54	12	2.0	75
1949												
Jan. 18,---	21,800	800	10:15am	36	4	5.3	221	4	66	14	2.5	63
		600	10:20	38	4	5.3	221	4	63	14	2.4	64
		410	10:25	38	4	5.5	218	5	66	14	2.5	62
		250	10:30	40	5	5.6	215	6	63	14	2.2	66
		100	10:35	40	5	5.9	219	8	67	14	2.5	62
Feb. 11,---	18,700	800	8:55	35	5	4.40	270	---	91	12	2.2	84
		600	9:00	34	5	4.5	264	---	90	12	2.5	81
		410	9:05	35	4	4.7	254	4	85	12	2.5	81
		250	9:10	35	4	4.8	248	2	80	12	2.5	81
		100	9:15	35	4	5.3	252	4	83	14	3.0	96
Mar. 22,---	14,400	800	----	--	--	---	---	--	---	--	---	---
		600	4:20pm	44	9	5.6	253	6	81	15	0.8	81
		410	4:15	44	11	5.6	251	6	80	17	0.8	78
		250	4:10	44	10	5.1	255	4	81	16	1.8	84
		100	4:05	44	10	5.6	251	6	77	16	1.8	81
Apr. 18,---	25,600	800	9:25am	50	11	6.0	202	14	60	13	1.0	57
		600	9:20	50	9	6.2	198	12	59	13	0.7	64
		410	9:15	41	10	6.4	191	14	54	13	0.6	54
		250	9:10	50	22	6.3	189	17	49	13	0.8	52
		100	9:05	50	20	6.4	189	18	49	13	0.6	51
May 13,---	7,250	800	9:00	67	4	6.0	282	12	86	17	1.5	84
		600	9:04	67	4	5.9	272	7	84	17	1.2	81
		410	9:06	67	5	5.8	272	8	84	17	1.2	81
		250	9:10	67	5	5.8	272	8	86	17	1.2	81
		100	9:15	67	4	5.7	274	10	89	17	1.4	76
June 14,---	4,190	800	7:45	76	2	5.2	317	4	120	18	3.2	102
		600	7:55	75	3	5.4	311	4	113	18	2.4	96
		410	8:00	75	2	5.5	316	3	108	18	2.2	98
		250	8:05	75	3	5.1	316	4	106	18	2.2	94
		100	8:10	75	3	5.3	316	4	126	18	1.9	100
July 15,---	5,180	800	9:45	80	2	6.0	420	14	122	34	1.9	117
		600	9:50	80	2	6.0	423	15	---	34	2.0	132
		410	9:55	80	5	6.0	420	14	---	34	1.7	117
		250	10:00	80	2	6.1	420	14	120	34	1.7	135
		100	10:00	81	2	5.9	420	14	124	34	1.9	141
Aug. 17,---	4,530	800	11:47	81	1	4.6	453	1	158	28	1.9	142
		600	11:44	81	1	4.8	452	4	159	28	2.0	144
		410	11:44	82	2	4.7	451	3	158	28	2.0	144
		250	11:38	82	1	4.7	455	5	158	28	2.2	144
		100	11:35	82	1	4.5	456	1	158	28	2.0	144
Sept. 14,---	4,470	800	4:05pm	73	2	6.1	464	16	148	36	3.4	144
		600	4:03	72	2	5.9	480	14	156	37	3.3	148
		410	4:00	72	2	5.8	483	12	154	36	3.1	148
		250	3:56	72	2	5.8	478	11	150	38	3.4	148
		100	3:54	73	2	6.1	476	18	148	37	3.3	144

RAPHS
OMMERCE
APRIL 1952
PYP712, 17/9 [no. 24]
H 24

Ohio River at South Heights, Pa.

Chemical analysee, in parts per million, water year October 1946 to September 1947

Date of collection	Mean discharge (second feet)	Temperature (°F.)	Color	pH	Specific conductance (Kx10⁶ at 25°C.) 3/	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potaeium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Noncarbonate	Total acidity as H_2SO_4
Oct. 3, 1946	1/ 4,100	—	3	3.70	94.3	8.0	—	—	—	80	21	65		0	365	40	—	—	602	296	296	32
Oct. 11-20	6,295	63	4	3.80	90.3	8.8	1.3	0.06	1.4	74	19	67		0	337	49	—	7.4	583	281	281	25
Oct. 21-31	12,410	60	2	5.4	65.6	6.2	—	.02	1.2	56	14	53		4	222	53	—	3.6	423	197	194	—
Nov. 1-10	7,352	60	3	4.7	54.7	6.8	.5	.02	.90	47	12	38		1	191	36	—	3.2	352	171	170	10
Nov. 11-20	7,701	55	2	4.30	61.6	6.6	.7	.03	.90	53	13	41		0	224	35	—	3.5	394	193	193	14
Nov. 21-30	11,390	49	6	4.6	56.4	4.8	.0	.04	.91	47	12	44		5	194	38	—	4.2	366	168	164	3
Dec. 1-10	10,690	43	5	5.7	45.0	4.4	—	.01	.65	40	10	33		10	150	32	—	3.2	292	141	133	—
Dec. 11-20	24,620	42	4	4.30	42.0	5.2	.0	.04	.77	35	9.3	26		0	145	22	—	3.8	265	129	129	7
Dec. 21-31	29,710	38	3	5.5	32.0	5.0	—	.02	.18	28	7.3	20		4	108	17	—	3.6	202	100	97	—
Jan. 1-10, 1947	59,480	37	3	5.4	21.2	—	—	—	—	—	—	—		6	69	8.9	—	4.0	—	—	—	—
Jan. 11-20	50,920	38	5	5.4	23.5	—	—	—	—	—	—	—		5	80	9.8	—	3.9	—	—	—	—
Jan. 21-31	73,840	39	5	5.2	20.3	—	—	—	—	—	—	—		4	70	6.5	—	3.9	—	—	—	—
Feb. 1-10	48,660	36	5	5.4	21.5	—	—	—	—	—	—	—		4	73	8.5	—	4.0	—	—	—	—
Feb. 11-20	19,920	34	5	4.5	30.7	—	—	—	—	—	—	—		0	109	14	—	4.1	—	—	—	11
Feb. 21-28	13,440	34	7	4.15	35.0	—	—	—	—	—	—	—		0	120	16	—	4.0	—	—	—	15
Mar. 1-10	15,030	36	7	3.93	44.3	—	—	—	—	—	—	—		0	164	18	—	5.2	—	—	—	17
Mar. 11-20	55,240	36	5	4.5	30.5	—	—	—	—	—	—	—		0	109	9.9	—	4.2	—	—	—	16
Mar. 21-31	69,710	38	5	5.1	20.2	—	—	—	—	—	—	—		2	70	7.6	—	3.8	—	—	—	—
Apr. 1-10	98,130	43	6	5.1	17.0	—	—	—	—	—	—	—		3	58	6.2	—	3.0	—	—	—	—
Apr. 11-20	46,330	51	5	5.8	19.0	—	—	—	—	—	—	—		9	60	8.5	—	2.4	—	—	—	—
Apr. 21-30	54,350	51	5	5.8	21.2	—	—	—	—	—	—	—		8	69	9.8	—	1.8	—	—	—	—
May 1-10	55,960	54	2	5.7	22.4	—	—	—	—	—	—	—		6	76	8.9	—	2.5	—	—	—	—
May 11-20	50,000	53	2	6.0	24.6	—	—	—	—	—	—	—		7	84	9.2	—	3.0	—	—	—	—
May 21-31	66,110	64	2	6.1	22.0	—	—	—	—	—	—	—		10	73	8.0	—	2.5	—	—	—	—
June 1-10	72,660	64	3	6.1	22.1	—	—	—	—	—	—	—		12	71	8.5	—	2.6	—	—	—	—
June 11-20	44,040	68	1	6.0	24.2	—	—	—	—	—	—	—		9	84	8.2	—	2.4	—	—	—	—
June 21-30	11,560	71	2	6.0	29.6	—	—	—	—	—	—	—		8	104	13	—	2.9	—	—	—	—
July 1-10	8,802	77	0	4.20	46.3	—	—	—	—	—	—	—		0	173	16	—	2.7	—	—	—	16
July 11-20	16,700	78	0	4.10	50.3	—	—	—	—	—	—	—		0	190	17	—	2.8	—	—	—	24
July 21-31	17,990	75	1	5.8	38.1	—	—	—	—	—	—	—		8	133	21	—	2.8	—	—	—	—
Aug. 1-10	13,950	76	0	5.9	35.8	—	—	—	—	—	—	—		6	134	12	—	2.6	—	—	—	—
Aug. 11-20	8,305	83	0	5.2	45.6	—	—	—	—	—	—	—		2	182	15	—	1.1	—	—	—	—
Aug. 21-31	15,480	82	2	4.05	48.0	—	—	.06	—	—	—	—		0	178	20	—	5.2	—	—	—	24
Sept. 1-10	10,430	79	2	4.30	43.1	—	—	.06	—	—	—	—		0	147	27	—	5.1	—	—	—	18
Sept. 11-20	9,408	79	2	4.10	51.3	—	—	.04	—	—	—	—		0	176	30	—	4.7	—	—	—	20
Sept. 21-30	7,007	72	3	3.95	52.8	—	—	.05	—	—	—	—		0	184	29	—	5.5	—	—	—	22
Average	2/ 31,610	56	3	—	39.0	—	—	—	—	—	—	—		—	138	19	—	3.6	—	—	—	—

1/ Mean discharge for Oct. 1-10, 3,454 second-feet.
2/ Mean discharge for Oct. 1-10 included in computing mean for year.
3/ To convert to micromhos at 25°, multiply by 10.

Ohio River at Sewickley
Cross-section samples of Ohio River at Sewickley and at Ambridge, Pa., 1946 and 1947

Date	Discharge (second-feet)	Station	Time	Temperature (°F.)	Color	pH	Specific conductance ($K \times 10^5$ at 25°C.) 1/	Parts per million: Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Total hardness as $CaCO_3$	Total acidity as H_2SO_4
Oct. 16, 1946---	6,450	1150	6:10pm	64	2	3.65	89.1	0	333	48	8.0	276	31
		850	6:05	64	5	3.60	89.6	0	330	45	7.7	282	33
		600	6:00	64	4	3.60	89.6	0	330	48	7.2	267	31
		370	5:55	64	4	3.60	89.4	0	330	48	7.6	270	30
		140	5:50	65	3	3.60	88.9	0	326	49	7.2	264	31
Nov. 15---------	8,860	1150	12:35	57	3	3.95	66.0	0	237	34	5.4	192	24
		850	12:40	57	2	3.85	66.7	0	239	34	5.3	195	25
		600	12:45	58	2	3.90	65.2	0	231	34	5.5	192	22
		370	12:50	56	3	4.70	62.3	0	237	36	5.8	192	15
		140	12:55	57	1	4.95	61.9	0	224	34	7.2	186	10
Dec. 17---------	25,600	1150	1:00	42	4	6.6	40.6	40	131	24	5.0	123	--
		850	1:10	42	4	5.0	35.0	8	117	22	3.8	99	--
		600	1:15	41	3	6.0	33.1	14	100	22	2.9	93	--
		370	1:20	41	4	6.0	30.5	17	93	23	2.8	90	--
		140	1:23	41	3	5.9	30.5	14	85	24	3.2	84	--
Jan. 16, 1947---	68,800	1150	9:45am	44	1	5.8	32.4	14	125	9	7.8	87	--
		850	9:50	44	1	5.8	32.1	16	120	9	6.2	90	--
		600	10:00	42	1	5.6	29.4	12	107	10	5.9	87	--
		370	10:05	39	1	5.6	24.1	8	79	14	4.0	63	--
		140	10:10	39	1	5.6	23.3	10	74	16	4.0	69	--
Feb. 24---------	12,800	1150	2:05pm	32	1	4.30	35.5	0	127	16	3.6	99	17
		850	2:00	32	1	4.35	34.9	0	126	16	3.5	102	17
		600	1:55	32	1	4.30	34.2	0	124	16	3.0	102	18
		370	1:50	32	1	4.35	33.8	0	123	16	4.1	96	17
		140	1:45	32	1	4.15	34.5	0	122	15	3.2	90	20
Mar. 18---------	67,000	1150	4:22	36	2	5.3	19.6	4	69	7	3.5	57	--
		850	4:13	34	4	5.1	19.0	6	68	9	3.2	57	--
		600	4:08	35	3	5.6	18.5	8	56	13	2.9	54	--
		370	4:03	34	3	6.0	19.3	18	42	18	3.1	57	--
		140	3:55	34	4	6.2	19.1	22	39	18	2.6	52	--
Apr. 14---------	43,400	1150	9:50am	52	3	6.2	19.0	7	59	9	2.6	64	--
		850	9:55	52	3	6.3	17.3	6	53	8	2.9	63	--
		600	10:05	51	3	6.5	16.2	10	43	9	2.8	58	--
		370	10:10	51	5	6.8	16.9	11	36	15	2.4	60	--
		140	10:15	50	5	6.6	14.2	12	33	10	2.6	54	--
May 19----------	75,800	1150	12:40pm	64	3	6.3	28.7	6	107	10	3.7	90	--
		850	12:45	63	3	6.2	26.5	6	96	9	3.8	81	--
		600	12:50	62	4	6.6	22.1	10	70	9	3.5	80	--
		370	12:55	60	4	6.6	19.4	13	53	11	2.7	74	--
		140	1:05	60	4	6.7	18.6	16	51	11	2.8	68	--
June 17---------	38,700	1150	10:55am	69	4	6.2	26.1	6	91	10	2.7	87	--
		850	10:50	69	4	6.3	24.6	10	83	10	2.7	84	--
		600	10:45	69	4	6.3	23.5	8	77	10	2.7	81	--
		370	10:40	69	4	6.5	22.3	9	71	10	2.6	81	--
		140	10:35	69	4	6.5	21.8	8	68	10	2.6	80	--

1/ To convert to micromhos at 25°, multiply by 10.

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Ohio River at Sewickley—Continued
Cross-section samples of Ohio River at Sewickley and at Ambridge, Pa., 1946 and 1947--Continued

Date	Discharge (second-feet)	Station	Time	Temperature (°F.)	Color	pH	Specific conductance ($K \times 10^5$ at 25°C.) 1/	Parts per million: Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Total hardness as $CaCO_3$	Total acidity as H_2SO_4
July 15, 1947——	11,400	1150	3:35pm	77	2	3.95	53.6	0	207	1	3.7	156	28
		850	3:33	77	0	3.85	53.0	0	201	5	3.7	153	34
		600	3:30	76	0	3.90	52.2	0	198	15	3.6	150	28
		370	3:28	76	0	3.90	52.1	0	196	15	3.4	150	30
		140	3:25	77	1	4.10	49.9	0	189	17	3.4	153	26
Aug. 11———	9,970	1150	7:00am	80	0	4.20	45.8	0	173	17	6.7	138	18
		850	7:00	80	2	4.00	47.1	0	175	15	6.4	144	20
		600	6:55	80	3	4.50	44.5	0	172	13	4.8	144	18
		370	6:48	80	0	4.10	45.7	0	177	13	6.4	144	16
		140	6:30	80	1	4.30	44.9	0	173	14	6.1	141	18
Sept. 16———	12,200	1150	1:25pm	79	0	4.20	52.8	0	190	25	6.6	138	16
		850	1:20	79	1	4.15	53.2	0	195	25	6.2	144	18
		600	1:15	79	1	4.25	53.2	0	192	27	7.2	156	14
		370	1:10	80	1	4.25	52.8	0	191	26	6.2	150	16
		140	1:05	80	1	4.10	53.4	0	194	26	6.2	150	18
Ohio River at Ambridge													
Oct. 16, 1946——	6,450	1380	2:40pm	65	3	3.50	91.8	0	335	50	8.2	264	26
		1090	2:45	64	4	3.50	93.3	0	335	49	8.7	267	29
		870	2:50	64	2	3.50	93.5	0	335	50	8.6	284	30
		625	2:55	64	3	3.50	93.5	0	339	49	8.6	273	27
		340	3:00	64	2	3.55	93.0	0	342	50	8.8	279	32
Nov. 15———	8,860	1380	2:10	---	2	4.05	64.6	0	233	34	5.4	186	19
		1090	2:05	---	2	4.15	64.1	0	234	34	5.6	198	16
		870	2:00	---	3	4.00	64.7	0	230	34	5.5	186	17
		625	1:50	---	4	4.45	63.3	0	229	34	4.8	195	13
		340	1:45	---	3	4.35	63.4	0	225	34	4.9	192	14
Dec. 17———	25,600	1380	1:50	42	3	5.3	35.7	5	119	23	4.6	102	---
		1090	1:55	42	2	5.6	34.0	8	106	22	4.5	88	---
		870	2:00	42	2	5.7	33.1	6	102	24	5.8	104	---
		625	2:05	42	3	5.7	31.9	8	92	24	3.1	93	---
		340	2:10	41	2	5.9	31.1	9	92	25	3.2	98	---
Jan. 16, 1947---	68,800	1380	11:10am	43	1	6.2	30.2	10	108	12	7.5	78	---
		1090	11:05	42	1	5.5	29.4	10	105	11	7.3	78	---
		870	11:00	41	1	5.7	27.6	10	95	12	5.5	78	---
		625	10:55	40	1	5.6	25.2	10	84	13	4.0	81	---
		340	10:50	39	1	5.6	23.6	8	80	15	3.9	66	---
Feb. 24———	12,800	1380	2:15pm	32	1	4.6	35.6	0	122	16	2.9	87	21
		1090	2:20	32	1	4.10	34.9	0	121	14	2.7	87	19
		870	2:25	32	1	4.20	34.9	0	124	14	2.7	90	18
		625	2:30	32	1	4.10	35.4	0	125	16	2.9	90	20
		340	2:35	32	1	4.6	33.2	0	123	15	3.4	102	20

1/ To convert to micromhos at 25°, multiply by 10.

Ohio River at Ambridge—Continued
Cross-section samples of Ohio River at Sewickley and at Ambridge, Pa., 1946 and 1947—Continued

Date	Discharge (second feet)	Station	Time	Temperature (°F.)	Color	pH	Specific conductance ($K \times 10^5$ at 25°C.) 1/	Parts per million: Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Total hardness as $CaCO_3$	Total acidity as H_2SO_4
Mar. 18, 1947—	67,000	1380	5:10pm	36	3	5.6	18.7	9	81	8	3.2	58	—
		1090	5:16	35	4	5.7	18.6	8	56	10	3.5	57	—
		870	5:22	34	3	5.8	18.9	11	52	13	3.1	57	—
		625	5:29	34	2	6.1	18.6	19	53	15	2.8	56	—
		340	5:35	33	3	6.2	18.7	18	47	17	2.8	60	—
Apr. 14—	43,400	1380	12:30	52	3	5.9	17.3	5	54	8	2.7	62	—
		1090	12:25	51	3	6.0	20.4	7	50	19	2.4	78	—
		870	12:20	51	3	6.1	16.0	8	43	8	2.7	52	—
		625	12:15	50	3	6.6	14.8	10	39	8	2.7	57	—
		340	12:10	50	3	6.8	14.2	13	34	8	2.7	54	—
May 19—	75,800	1380	2:25	63	4	6.2	27.0	7	97	9	2.8	96	—
		1090	2:20	62	4	6.5	25.6	9	90	9	3.1	84	—
		870	2:15	61	4	6.5	23.0	8	76	10	2.9	80	—
		625	2:10	61	4	6.7	20.3	13	61	12	2.7	72	—
		340	2:05	60	4	6.8	18.9	15	51	12	2.6	69	—
June 17—	38,700	1380	12:20	70	4	6.2	25.2	8	86	10	2.6	87	—
		1090	12:15	70	4	6.3	24.6	8	83	9	2.6	84	—
		870	12:10	70	4	6.3	23.7	8	79	10	2.5	81	—
		625	12:05	69	4	6.4	23.5	10	73	10	2.7	87	—
		340	12:00	69	4	6.4	22.1	9	72	10	2.8	80	—
July 15—	11,400	1090	3:03	76	1	3.95	54.1	0	203	15	4.0	153	20
		870	3:01	76	1	3.90	54.4	0	205	17	4.9	150	28
		625	2:56	76	2	3.85	54.8	0	207	16	7.0	150	28
		340	2:53	76	1	3.95	53.8	0	205	16	3.4	141	32
Aug. 11—	9,970	1380	12:30	82	2	4.10	45.8	0	172	13	6.2	129	24
		1090	12:35	82	3	4.00	45.6	0	174	15	6.4	147	20
		870	12:32	82	3	4.10	45.9	0	174	15	6.2	138	18
		625	12:30	83	1	4.00	46.1	0	173	13	6.0	141	20
		340	12:25	82	3	4.10	45.7	0	174	14	5.7	132	18
Sept. 16—	12,200	1380	2:00	79	1	4.45	51.9	0	188	27	5.8	153	14
		1090	2:05	79	2	4.30	52.5	0	189	27	6.1	156	12
		870	2:10	79	1	4.30	52.2	0	188	27	6.1	150	16
		625	2:15	79	1	5.4	51.4	8	188	27	6.0	156	—
		340	2:20	80	0	4.20	52.3	0	185	29	6.2	150	12

1/ To convert to micromhos at 25°, multiply by 10.

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OHIO RIVER BASIN--Continued

Ohio River at Ambrige, Pa.

Chemical analyses, in parts per million, water year October 1946 to September 1947

Date of collection	Mean discharge (second feet)	Temperature (°F.)	Color	pH	Specific conductance (Kx10⁶ at 25°C.) 1/	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$		Total acidity as H_2SO_4
																				Total	Non carbonate	
Oct. 1-10, 1946	3,454	68	3	3.70	92.1	10	2.4	0.08	1.8	79	19	59		0	353	40	—	8.8	600	302	302	33
Oct. 11-20	6,895	65	5	3.80	89.9	9.4	1.4	.05	1.8	76	19	63		0	337	48	—	7.5	589	287	287	27
Oct. 21-31	12,410	61	4	5.4	65.9	6.0	—	.03	1.1	57	14	51		2	221	54	—	3.6	426	200	198	—
Nov. 1-10	7,352	61	5	5.0	54.9	6.6	.6	.02	1.1	48	12	37		4	190	36	—	3.4	356	174	171	11
Nov. 11-20	7,701	56	5	4.7	60.3	7.2	.6	.02	1.0	52	13	43		5	218	34	--	3.7	393	188	184	12
Nov. 21-30	11,390	50	5	4.5	56.4	4.0	.0	.03	.84	48	12	42		2	193	39	--	5.0	365	171	169	5
Dec. 1-10	10,690	43	5	6.0	44.7	3.6	--	.01	.50	39	9.3	31		14	137	33	--	3.5	278	136	124	—
Dec. 11-20	24,620	42	6	5.8	37.4	4.4	--	.02	.52	33	8.3	26		12	121	24	—	3.4	234	116	107	—
Dec. 21-31	29,710	38	5	5.3	33.2	5.2	—	.02	.65	29	7.2	19		4	108	17	—	3.6	203	102	99	--
Jan. 1-10, 1947	59,480	35	5	6.2	17.2	5.0	—	.01	.03	16	3.9	10		11	45	14	—	2.9	107	56	47	—
Jan. 11-20	50,920	38	5	6.1	21.7	5.8	—	.02	.22	20	5.2	11		7	64	14	—	3.0	141	71	66	—
Jan. 21-31	73,840	37	6	6.3	15.6	5.7	—	.02	.30	14	3.6	8.4		10	42	10	—	2.5	96	50	42	—
Feb. 1-10	48,660	34	7	6.1	16.2	5.6	—	.02	.10	15	3.8	8.5		9	46	10	—	2.6	101	53	46	—
Feb. 11-20	19,920	35	5	4.5	29.9	6.6	.4	.02	.22	27	7.3	13		1	104	12	—	3.2	188	100	99	9
Feb. 21-28	13,440	34	6	4.45	33.8	6.6	.6	.02	.49	29	7.9	18		0	118	16	--	3.6	212	110	110	12
Mar. 1-10	15,030	37	7	3.85	43.5	6.8	.6	.03	.92	35	9.9	20		0	150	17	--	4.8	270	140	140	14
Mar. 11-15	40,760	37	6	4.10	38.2	5.6	.8	.03	.82	33	9.4	14		0	133	14	--	4.6	239	131	131	13
Mar. 16-20	69,700	35	6	6.5	19.8	4.4	—	.05	.12	19	4.7	8.4		16	48	14	--	2.8	117	67	54	—
Mar. 21-31	69,710	35	7	6.3	16.2	4.9	--	.08	.08	15	3.9	8.3		14	42	10	--	2.8	101	54	42	—
Apr. 1-10	98,130	42	12	6.2	12.8	5.0	--	.11	.02	12	3.2	6.3		13	32	7.8	—	2.2	79	43	32	--
Apr. 11-20	46,330	51	12	6.4	15.0	4.9	--	.07	.00	14	3.5	7.7		14	40	8.0	--	2.2	91	49	38	—
Apr. 21-30	54,350	50	7	6.4	15.8	4.9	--	.07	.06	15	3.8	7.9		14	42	9.5	—	2.0	98	53	42	—
May 1-10	55,960	53	3	6.6	17.0	3.9	—	.04	.04	16	4.1	9.3		16	47	9.5	—	2.0	105	57	44	—
May 11-20	50,000	56	6	6.2	19.9	8.9	—	.01	.10	18	4.8	12		15	60	10	—	2.2	127	65	52	—
May 21-31	66,110	64	6	6.3	16.9	6.2	—	.05	.01	16	4.1	8.5		16	47	8.2	--	1.9	101	57	44	—
June 1-10	72,660	63	7	6.2	16.9	6.3	—	.08	.01	16	4.0	8.3		15	46	8.8	—	2.1	101	56	44	—
June 11-20	44,040	69	5	6.2	20.6	5.8	—	.03	.08	20	5.2	9.4		13	65	8.2	—	2.4	126	71	61	—
June 21-30	11,560	73	3	5.8	30.3	7.6	—	.02	.15	28	7.4	15		8	103	12	—	3.1	188	100	94	—
July 1-10	8,802	77	3	4.7	45.6	6.4	1.4	.01	1.2	42	11	22		3	172	18	--	1.6	303	160	158	15
July 11-20	16,700	78	4	4.6	48.3	6.6	2.1	.01	1.3	42	12	25		3	186	18	—	1.4	320	168	166	18
July 21-31	17,990	75	3	5.9	38.3	6.4	—	.01	.61	36	8.8	23		11	128	23	—	2.6	247	126	117	—
Aug. 1-10	13,950	77	5	5.8	35.3	6.4	--	.01	.50	34	8.5	18		7	128	13	--	2.4	230	120	114	--
Aug. 11-20	8,305	84	3	5.0	46.0	7.0	1.1	.01	1.4	42	11	25		5	178	16	—	1.9	309	159	155	11
Aug. 21-31	15,480	82	3	4.15	46.3	6.8	.3	.04	.80	41	11	25		0	171	19	0.1	3.6	290	154	154	15
Sept. 1-10	10,430	80	5	4.6	42.2	5.8	.2	.03	.68	37	9.4	26		2	144	25	.0	3.5	464	133	132	12
Sept. 11-20	9,408	80	4	4.25	50.8	6.0	.3	.03	.88	42	11	34		0	179	29	.1	3.1	318	155	155	20
Sept. 21-30	7,007	72	6	4.30	51.5	7.2	.5	.04	.88	43	11	34		0	184	28	.2	2.4	323	159	159	17
Average	31,610	56	5	—	36.7	6.1	—	0.03	0.58	32	8.3	—		—	125	20		3.2	233	—	—	—

1/ To convert to micromhos at 25° multiply by 10

OHIO RIVER AT AMBRIDGE, PA.

Chemical analyses, in parts per million, water year October 1947 to September 1948

Date of collection	Mean discharge (second feet)	Temperature (°F.)	Color	pH	Specific conductance (micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Non carbonate	Total acidity as H_2SO_4
Oct. 1-10, 1947	4,527	67	3	4.50	535	7.2	0.2	0.03	0.08	46	12	37		0	194	30	0.1	2.2	343	167	--	14
Oct. 11-20	3,414	69	3	4.40	633	6.4	2.1	.03	.9	55	13	35		0	212	38	.3	6.4	416	205	--	14
Oct. 21-31	3,643	68	3	4.50	710	--	--	.02	--	--	--	--		0	257	44	--	--	--	--	--	16
Nov. 1-10	6,730	63	2	4.30	770	--	--	.03	--	--	--	--		0	295	40	--	--	--	--	--	19
Nov. 11-20	14,465	55	3	4.6	613	--	--	.03	--	--	--	--		0	234	32	--	--	--	--	--	20
Nov. 21-30	18,258	45	6	5.7	437	--	--	.02	--	--	--	--		6	139	31	--	--	--	--	--	--
Dec. 1-10	24,580	41	2	6.3	335	--	--	.02	--	--	--	--		16	90	29	--	--	--	--	--	--
Dec. 11-20	31,180	37	5	6.3	224	--	--	.10	--	--	--	--		12	66	15	--	--	--	--	--	--
Dec. 21-31	13,390	37	5	6.3	270	--	--	.06	--	--	--	--		12	81	16	--	--	--	--	--	--
Jan. 1-10, 1948	47,370	37	3	6.0	248	5.6	--	.03	.31	22	5.8	15		10	73	17	.1	3.5	152	79	71	--
Jan. 11-20	22,420	35	7	5.1	254	--	--	.15	--	--	--	--		1	85	12	--	--	--	--	--	--
Jan. 21-31	10,866	34	1	5.0	342	--	--	.06	--	--	--	--		2	120	15	--	--	--	--	--	11
Feb. 1-10	9,201	33	2	5.3	411	--	--	.03	--	--	--	--		4	145	22	--	--	--	--	--	--
Feb. 11-14	34,300	33	10	5.3	438	--	--	.96	--	--	--	--		4	163	18	--	--	--	--	--	--
Feb. 15-20	123,833	34	8	6.1	194	--	--	.12	--	--	--	--		8	52	13	--	--	--	--	--	--
Feb. 21-29	79,378	36	13	6.2	157	--	--	.12	--	--	--	--		8	43	9	--	--	--	--	--	--
Mar. 1-10	60,050	37	2	6.1	179	--	--	.04	--	--	--	--		8	50	10	--	2.5	--	--	--	--
Mar. 11-20	46,890	39	3	6.1	220	--	--	.06	--	--	--	--		8	66	14	--	1.8	--	--	--	--
Mar. 21-31	110,573	46	12	6.0	131	--	--	.12	--	--	--	--		10	34	7.0	--	2.8	--	--	--	--
Apr. 1-10	54,210	49	3	6.1	185	5.7	--	.05	.07	17	4.6	9.0		10	53	11	.1	2.2	112	61	53	--
Apr. 11-20	149,780	48	4	5.7	160	--	--	.04	--	--	--	--		7	49	7.2	--	2.7	--	--	--	--
Apr. 21-30	51,070	55	1	5.2	219	--	--	.01	--	--	--	--		5	74	8.5	--	1.4	--	--	--	--
May 1-10	64,500	54	5	5.4	223	--	--	.01	--	--	--	--		2	76	12	--	1.4	--	--	--	--
May 11-20	49,160	60	5	6.0	211	--	--	.01	--	--	--	--		8	68	11	--	1.2	--	--	--	--
May 21-31	295,545	63	0	5.9	249	--	--	.01	--	--	--	--		7	83	12	--	.9	--	--	--	--
June 1-10	19,040	71	1	4.50	359	--	--	.02	--	--	--	--		0	136	14	--	1.1	--	--	--	16
June 11-20	32,670	70	2	5.1	311	--	--	.02	--	--	--	--		2	111	14	--	1.3	--	--	--	--
June 21-30	31,010	74	3	5.4	273	--	--	.03	--	--	--	--		4	94	12	--	2.6	--	--	--	--
July 1-10	21,930	76	1	5.0	311	--	--	.03	--	--	--	--		1	115	12	--	1.8	--	--	--	--
July 11-20	19,400	78	2	4.8	373	--	--	.03	--	--	--	--		2	143	13	--	1.0	--	--	--	--
July 21-31	30,882	76	1	5.1	290	--	--	.02	--	--	--	--		2	104	12	--	2.8	--	--	--	--
Aug. 1-10	22,290	75	3	4.7	319	--	--	.05	--	--	--	--		1	113	14	--	2.6	--	--	--	12
Aug. 11-20	16,470	75	1	5.6	355	--	--	.01	--	--	--	--		3	126	17	--	2.5	--	--	--	--
Aug. 21-31	8,262	79	1	4.45	428	--	--	.03	--	--	--	--		0	159	18	--	1.5	--	--	--	18
Sept. 1-10	5,007	79	10	4.00	534	7.8	1.4	.08	1.6	44	13	27		0	197	22	.2	2.9	337	179	--	24
Sept. 11-20	5,559	78	5	4.25	614	--	--	.01	--	--	--	--		0	223	24	--	1.2	--	--	--	41
Sept. 21-30	9,688	72	5	4.00	694	--	--	.04	--	--	--	--		0	253	26	--	.8	--	--	--	86
Average	41,930	56	4	--	357	--	--	0.07	--	--	--	--		--	124	18	--	--	--	--	--	--

RAPHS

OMMERCE

APRIL 1952

PYP712.17/9
[no. 24]

24

Ohio River at Ambridge, Pa.
Cross-section samples for water year ended September 30, 1948

Date	Discharge (second-feet)	Station	Time	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Parts per million: Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Total hardness as $CaCO_3$
1947												
Oct. 14,---	3,310	1380	-----	--	--	----	---	---	---	---	---	---
		1090	9:50am	68	4	4.7	600	3	212	38	6.1	138
		870	10:00	68	3	4.40	608	0	210	38	7.1	174
		625	10:05	68	3	4.30	608	0	211	38	6.6	168
		340	10:10	68	4	4.5	601	2	209	38	6.6	153
Nov. 10,---	7,410	1380	3:45pm	58	1	3.95	778	0	299	36	6.4	216
		1090	3:42	58	2	3.75	802	0	302	35	6.8	219
		870	3:35	58	0	3.75	806	0	301	35	7.2	225
		625	3:30	58	1	3.80	804	0	302	36	6.9	222
		340	3:20	58	1	3.80	799	0	298	36	6.9	225
Dec. 24,---	17,200	1380	10:55am	37	3	6.0	255	16	74	19	4.7	90
		1090	11:00	36	2	5.9	257	16	75	20	4.0	84
		870	11:05	36	2	6.0	260	16	77	20	4.6	93
		625	11:00	36	1	6.0	251	16	75	19	4.2	90
		340	11:15	35	2	5.9	257	12	79	20	4.8	93
1948												
Jan. 16,---	20,400	1380	11:55	33	1	4.5	251	2	87	9	3.1	90
		1090	11:50	34	0	4.5	246	2	85	9	2.8	87
		870	11:45	34	0	4.7	241	4	83	10	3.1	84
		625	11:30	34	1	4.9	239	6	81	11	2.9	84
		340	11:31	34	1	5.4	244	8	83	12	3.0	84
Feb. 17,---	97,000	1380	2:55pm	38	2	5.7	203	6	65	8	6.2	69
		1090	2:50	38	1	5.5	200	5	61	9	5.7	70
		870	2:45	37	2	5.6	198	2	57	13	5.1	66
		625	2:40	36	4	5.7	201	8	51	16	4.7	64
		340	2:35	36	5	5.8	205	12	48	19	4.2	64
Mar. 16,---	26,400	1380	2:00	46	3	4.20	317	0	109	10	3.3	114
		1090	2:05	44	2	4.30	303	0	105	12	3.3	105
		870	2:10	43	2	4.5	288	0	98	12	4.5	99
		625	2:15	42	1	4.8	261	6	89	15	3.4	96
		340	2:20	42	2	5.2	256	6	81	15	4.3	96
Apr. 15,---	275,000	1380	8:20am	60	3	5.7	188	4	63	4	4.6	70
		1090	8:15	60	2	5.6	179	4	61	4	5.0	66
		870	8:10	60	4	5.5	167	3	58	4	4.1	64
		625	8:05	60	3	5.4	158	2	52	5	4.0	57
		340	8:00	60	2	5.4	155	4	53	5	3.8	58
May 14,----	52,300	1380	9:25	63	2	4.9	271	1	106	5	1.6	84
		1090	9:30	62	1	4.9	258	1	99	7	1.5	81
		870	9:35	62	1	5.1	242	6	91	14	1.4	76
		625	9:40	62	1	5.6	216	6	85	8	1.2	78
		340	9:45	61	2	5.9	208	6	68	10	1.2	70
June 18,---	24,700	1380	7:57	72	2	4.40	325	0	125	8	1.7	117
		1090	7:54	72	2	4.20	332	0	126	11	1.8	123
		870	7:51	71	2	4.15	329	0	126	11	1.8	120
		625	7:47	72	2	4.45	308	0	118	10	1.6	114
		340	7:45	72	2	4.8	303	2	119	13	1.5	120
July 20,---	19,900	1380	11:19	80	7	5.3	388	10	159	14	0.9	132
		1090	-----	--	--	----	---	---	---	---	---	---
		870	11:00	79	7	5.7	382	10	151	14	1.2	129
		625	10:49	79	6	5.8	359	8	142	16	4.4	129
		340	10:45	79	6	5.6	359	12	135	17	4.3	132
Aug. 18,---	12,200	1380	12:50pm	75	2	6.0	363	12	137	19	3.8	129
		1090	12:45	75	2	6.1	372	16	137	20	3.1	141
		870	12:40	75	2	6.2	379	20	137	20	1.9	138
		625	12:35	75	3	6.1	372	14	131	20	2.6	135
		340	12:30	75	3	5.7	372	8	131	19	2.5	132
Sept. 21,--	8,220	1380	10:50am	76	2	4.15	757	0	351	24	7.3	---
		1090	10:55	77	1	4.10	738	0	292	26	4.3	180
		870	11:05	76	1	3.95	750	0	289	25	5.8	192
		625	11:10	76	1	3.95	749	0	294	25	5.8	192
		340	11:15	76	1	3.90	747	0	292	24	6.2	192

OHIO RIVER AT AMBRIDGE, PA.

Chemical analyses, in parts per million, water year October 1948 to September 1949

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Kx10⁶ at 25°C.) 1/	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$		Total acidity as H_2SO_4
																				Total	Non carbonate	
Oct. 1-10, 1948---	6,406	68	5	3.65	679	7.8	3.2	.14	1.5	51	14	36		0	246	23	.3	7.4	408	217	217	40
Oct. 11-20--------	9,861	62	6	3.80	646	--	--	--	--	--	--	--		0	249	24	--	--	--	--	--	48
Oct. 21-31--------	10,350	56	10	5.4	501	--	--	--	--	--	--	--		12	149	44	--	--	--	--	--	--
Nov. 1-10---------	10,260	59	5	4.45	481	--	--	--	--	--	--	--		0	162	29	--	--	--	--	--	26
Nov. 11-20--------	14,450	53	5	4.15	495	4.0	2.1	.02	1.3	42	12	22		0	174	24	.0	3.8	306	171	171	44
Nov. 21-30--------	30,640	48	5	6.2	372	--	--	--	--	--	--	--		15	108	21	--	2.4	--	--	--	--
Dec. 1-10---------	37,720	43	5	6.1	267	--	--	--	--	--	--	--		9	75	17	--	2.2	--	--	--	--
Dec. 11-20--------	72,570	41	5	6.1	252	--	--	--	--	--	--	--		8	73	14	--	2.8	--	--	--	--
Dec. 21-31--------	42,810	37	5	5.4	238	--	--	--	--	--	--	--		2	74	11	--	4.0	--	--	--	--
Jan. 1-10, 1949---	74,470	34	10	6.0	184	--	--	--	--	--	--	--		8	47	12	.0	3.4	--	--	--	--
Jan. 11-20--------	42,300	38	5	5.6	193	5.5	--	.05	.35	17	4.9	6.5		5	52	12	.0	2.8	119	63	59	--
Jan. 21-31--------	104,700	39	5	6.1	188	--	--	--	--	--	--	--		8	53	11	.1	1.8	--	--	--	--
Feb. 1-10---------	59,530	36	5	5.0	205	--	--	--	--	--	--	--		2	80	10	--	2.0	--	--	--	--
Feb. 11-20--------	60,520	40	5	5.5	225	--	--	--	--	--	--	--		4	87	14	--	1.4	--	--	--	--
Feb. 21-28--------	68,320	41	5	6.0	188	--	--	--	--	--	--	--		6	65	9	--	2.5	--	--	--	--
Mar. 1-10---------	44,740	38	5	6.0	223	--	--	--	--	--	--	--		5	87	11	--	1.8	--	--	--	--
Mar. 11-20--------	41,130	36	5	6.2	239	--	--	--	--	--	--	--		7	87	14	--	1.6	--	--	--	--
Mar. 21-31--------	49,450	45	20	5.9	220	--	--	--	--	--	--	--		9	69	14	.2	1.8	--	--	--	--
Apr. 1-10---------	54,500	47	10	6.5	196	5.7	--	.04	.05	18	4.9	12		9	64	11	.2	1.4	125	65	58	--
Apr. 11-20--------	42,280	48	10	6.0	204	--	--	--	--	--	--	--		9	65	12	--	1.8	--	--	--	--
Apr. 21-30--------	42,240	52	10	6.0	216	--	--	--	--	--	--	--		10	68	14	--	1.8	--	--	--	--
May 1-10----------	21,570	63	10	5.9	257	--	--	--	--	--	--	--		8	88	11	--	1.3	--	--	--	--
May 11-20---------	10,550	70	10	5.7	375	--	--	--	--	--	--	--		6	144	16	--	1.1	--	--	--	--
May 21-31---------	40,630	64	10	5.9	276	--	--	--	--	--	--	--		8	93	15	--	.8	--	--	--	--
June 1-10---------	10,960	69	4	6.1	312	--	--	--	--	--	--	--		5	111	14	.2	1.0	--	--	--	--
June 11-20--------	7,958	78	4	4.7	424	--	--	--	--	--	--	--		1	154	18	.3	3.6	--	--	--	10
June 21-30--------	8,206	82	5	4.6	505	--	--	--	--	--	--	--		1	192	19	.4	2.8	--	--	--	--
July 1-10---------	6,875	84	5	5.0	455	--	--	--	--	--	--	--		3	169	22	.4	3.2	--	--	--	--
July 11-20--------	15,250	82	5	4.8	469	--	--	--	--	--	--	--		2	178	20	.3	2.6	--	--	--	--
July 21-31--------	15,630	83	1	5.1	390	--	--	--	--	--	--	--		2	147	17	.2	.8	--	--	--	--
Aug. 1-10---------	9,298	83	2	5.6	393	--	--	--	--	--	--	--		6	138	22	--	4.0	--	--	--	--
Aug. 11-20--------	11,540	83	1	5.0	429	--	--	--	--	--	--	--		4	165	20	--	4.0	--	--	--	--
Aug. 21-31--------	9,335	79	2	4.05	453	--	--	--	--	--	--	--		0	164	20	--	3.8	--	--	--	16
Sept. 1-10--------	8,709	76	5	5.9	450	7.0	--	.04	1.5	39	11	27		8	162	22	.2	3.4	286	143	136	--
Sept. 11-20-------	5,066	74	3	5.5	420	--	--	--	--	--	--	--		4	150	22	--	5.1	--	--	--	--
Sept. 21-30-------	6,273	70	1	5.0	509	--	--	--	--	--	--	--		3	182	30	--	5.4	--	--	--	--
Average------	30,706	58	6	5.4	348	--	--	--	--	--	--	--		5	121	18	--	2.7	--	--	--	--

1/ To convert to micromhos at 25°, multiply by 10.

PWP 712, 1/6, Inc. 241
APRIL 1952
COMMERCE
GRAPHS

Ohio River at Ambridge, Pa.
Cross-section samples for water year ended September 30, 1949

Date	Discharge (second-feet)	Station	Time	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Parts per million: Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Total hardness as $CaCO_3$
1948												
Oct. 18,—	11,100	1380	4:35pm	60	2	4.30	633	0	252	27	2.6	218
		1090	4:39	60	4	3.80	687	0	280	29	5.5	218
		870	4:43	60	3	4.05	653	0	259	27	4.0	202
		625	4:49	60	4	3.90	655	0	254	28	4.2	202
		340	4:52	60	2	4.10	643	0	252	28	3.0	210
Nov. 15,—	13,200	1380	11:35am	52	2	4.7	478	1	184	21	1.2	132
		1090	11:25	52	1	4.7	479	2	183	20	1.0	150
		870	11:15	52	1	4.7	499	1	192	22	1.0	156
		625	11:10	52	1	4.8	514	2	205	21	1.0	144
		340	11:05	53	1	4.8	515	2	207	25	1.0	150
Dec. 22,—	58,500	1380	2:15pm	44	10	4.30	241	0	87	6	1.5	90
		1090	2:20	43	11	4.30	234	0	70	5	1.5	90
		870	2:25	43	11	4.40	223	0	72	6	1.5	—
		625	2:30	41	6	4.9	208	4	73	8	2.2	81
		340	2:35	39	11	5.6	209	7	63	11	2.5	84
1949												
Jan. 18,—	39,600	1380	12:50	48	4	4.10	303	0	110	8	2.2	96
		1090	12:45	46	4	4.30	289	0	102	8	2.4	90
		870	12:40	44	5	4.30	266	0	91	10	3.2	72
		625	12:35	41	4	4.9	232	2	77	12	2.8	66
		340	12:30	40	5	5.6	219	8	68	12	2.7	69
Feb. 11,—	37,800	1380	11:30am	39	4	4.30	308	0	115	9	3.0	87
		1090	11:30	39	5	4.30	297	0	107	9	3.2	78
		870	11:35	38	5	4.40	287	0	102	9	2.8	78
		625	11:40	37	4	4.6	264	2	91	12	5.2	78
		340	11:40	36	4	4.7	258	2	88	12	5.2	75
Mar. 22,—	33,300	1380	1:35pm	42	10	4.00	358	0	128	12	2.8	111
		1090	1:30	42	10	4.10	348	0	121	14	1.5	108
		870	1:25	42	12	4.20	316	0	108	13	2.5	96
		625	1:20	42	9	4.40	289	0	94	14	2.2	90
		340	1:15	42	10	4.8	286	0	88	18	2.0	87
Apr. 18,—	35,100	1380	5:30	52	10	6.3	263	5	95	10	0.8	84
		1090	5:25	52	10	6.3	217	11	67	12	1.2	64
		870	5:35	51	11	5.9	237	6	78	11	2.0	66
		625	5:20	51	10	5.3	255	4	86	10	2.0	81
		340	5:15	51	9	6.2	211	12	60	12	1.5	60
May 13,—	11,000	1380	11:00am	68	5	5.4	364	4	127	16	3.0	112
		1090	10:55	68	4	4.8	374	2	132	16	3.2	112
		870	10:50	68	5	5.3	368	4	130	16	2.5	116
		625	10:45	68	6	5.1	384	4	135	17	3.4	120
		340	10:40	68	5	6.1	368	9	126	16	3.0	116
June 14,—	6,540	1380	10:00	78	2	5.3	396	4	141	16	4.5	122
		1090	10:05	77	2	5.4	384	5	139	17	5.1	116
		870	10:15	78	2	5.0	392	4	141	16	4.7	114
		625	10:20	78	2	5.7	386	7	142	16	5.5	134
		340	10:25	78	2	5.0	382	3	144	18	4.7	126
July 15,—	16,100	1380	12:00m	80	2	5.3	475	3	171	24	1.2	—
		1090	11:55am	80	2	5.6	475	7	166	24	1.1	—
		870	11:50	79	2	5.5	475	4	172	24	1.2	150
		625	11:50	80	2	5.5	476	4	167	24	1.4	153
		340	11:45	81	1	5.6	478	5	166	24	1.3	150
Aug. 17,—	9,520	1380	12:55pm	83	1	5.3	423	8	152	20	5.1	128
		1090	1:00	82	1	5.4	421	7	150	20	4.9	128
		870	1:05	82	1	5.4	420	6	156	22	4.7	128
		625	1:08	83	1	5.7	422	10	154	20	4.3	130
		340	1:08	83	1	5.4	419	6	144	21	4.4	128
Sept. 14,—	5,640	1380	6:35	73	1	5.3	401	4	151	18	4.9	126
		1090	6:31	73	1	5.4	400	4	145	18	4.3	122
		870	6:29	73	1	5.2	401	4	149	18	4.3	122
		625	6:22	73	1	5.3	406	6	150	19	4.6	122
		340	6:15	73	1	5.4	404	5	145	18	4.7	124

French Creek at Franklin, Pa.

Chemical analyses, in parts per million, water year October 1946 to September 1947

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Kx10⁶ at 25°C.) [1/]	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$	
																		Total	Noncarbonate
Oct. 1-10, 1946	115	---	8	7.7	25.2	0.4	0.01	34	6.9	8.4	2.9	112	23	12	0.1	0.6	145	113	21
Oct. 11-20	369	---	6	7.5	24.5	2.0	.01	32	6.5	6.9	3.1	105	24	7.4	.1	1.2	139	107	21
Oct. 21-31	386	---	8	7.5	23.5	1.4	.01	32	6.1	5.8	2.8	88	34	5.9	.1	.7	138	105	33
Nov. 1-10	233	---	11	7.6	26.6	1.2	.01	35	7.2	6.9	5.3	105	37	7.5	.1	.8	156	117	31
Nov. 11-20	636	---	16	7.6	23.2	5.2	.01	31	6.1	4.6	6.1	88	36	5.8	.1	1.4	141	102	30
Nov. 21-30	1,200	---	14	7.9	20.3	4.2	.02	27	5.3	5.5	2.9	67	37	5.2	.1	1.6	123	89	34
Dec. 1-10	676	---	22	7.1	20.1	5.6	.03	27	5.1	5.4	2.4	64	35	5.2	.1	1.4	122	88	36
Dec. 11-20	2,224	---	30	7.0	15.6	7.1	.02	20	4.0	3.3	1.6	44	30	3.9	.1	1.8	98	66	30
Dec. 21-31	2,775	---	30	7.0	16.0	5.8	.03	21	4.0	3.6	1.4	50	28	4.1	.1	2.0	97	69	28
Jan. 1-10, 1947	3,188	---	32	7.0	13.3	5.4	.01	17	3.4	3.0	1.5	35	26	3.5	.1	2.0	82	56	27
Jan. 11-20	3,588	---	13	6.9	12.8	5.1	.02	18	3.6	3.1	1.2	42	25	3.2	.0	2.0	83	60	25
Jan. 21-31	5,893	---	15	6.8	11.5	4.5	.02	15	3.1	2.4	1.0	32	23	2.8	.0	2.3	71	50	30
Feb. 1-10	3,589	---	15	6.3	13.6	5.3	.04	17	4.1	3.0	1.3	39	24	3.2	.1	2.6	85	59	27
Feb. 11-20	1,399	---	8	6.4	16.4	6.5	.03	22	4.3	3.6	1.4	55	24	4.0	.1	3.0	100	73	28
Feb. 21-28	940	---	11	6.6	17.6	6.3	.03	24	4.6	4.2	1.2	63	25	4.5	.1	2.6	107	79	27
Mar. 1-10	828	---	10	6.6	18.3	6.5	.03	24	4.8	4.5	1.3	67	24	4.2	.1	2.9	109	80	25
Mar. 11-20	4,316	---	10	7.0	13.0	5.1	.04	16	3.4	3.0	1.3	41	21	3.1	.1	3.2	80	54	20
Mar. 21-31	5,638	---	12	6.9	11.1	5.1	.06	14	2.9	2.6	1.1	34	19	2.9	.0	3.2	70	47	19
Apr. 1-10	12,420	---	25	6.8	8.98	4.9	.20	11	2.3	2.0	1.2	25	16	2.1	.0	2.3	59	37	16
Apr. 11-20	4,703	---	25	7.0	12.2	4.7	.05	16	3.1	2.6	1.3	40	20	2.9	.1	2.2	76	53	20
Apr. 21-30	5,524	---	8	7.4	11.6	3.7	.02	15	3.1	2.2	.9	37	19	2.1	.1	1.4	72	50	20
May 1-10	3,950	---	9	7.7	12.9	3.7	.02	17	3.5	2.3	.9	47	19	2.4	.1	1.2	78	57	18
May 11-20	2,870	---	9	7.8	13.9	2.9	.02	18	3.8	3.0	.8	52	19	2.8	.1	1.1	83	60	18
May 21-31	6,218	---	20	6.9	11.7	3.8	.04	16	3.0	1.9	1.5	46	16	2.0	.1	1.0	74	52	15
June 1-10	8,080	---	30	7.0	11.0	3.9	.13	15	2.8	1.7	1.5	45	14	1.5	.1	1.2	72	49	12
June 11-20	3,423	---	32	7.1	13.7	4.0	.16	19	3.5	2.3	1.6	59	15	2.2	.1	1.1	87	62	13
June 21-30	853	---	14	7.7	19.1	3.3	.04	27	5.0	4.0	1.5	85	19	3.9	.1	.8	113	88	18
July 1-10	436	---	8	7.8	22.9	1.6	.02	31	5.7	6.4	1.3	104	23	6.8	.1	.6	130	101	16
July 11-20	896	---	10	7.5	20.4	3.5	.03	28	5.1	5.0	1.3	87	20	6.5	.1	1.0	118	91	20
July 21-31	1,290	---	22	7.3	16.4	4.2	.03	23	4.0	3.2	1.1	73	18	2.0	.1	1.0	100	74	14
Aug. 1-10	339	---	10	7.6	21.8	2.1	.02	30	5.5	5.7	1.6	99	22	5.8	.2	.6	125	97	16
Aug. 11-20	318	---	9	7.5	23.1	2.1	.01	32	5.7	6.4	1.7	104	22	6.5	.1	.8	131	103	18
Aug. 21-31	270	---	8	7.8	23.5	3.1	.02	31	5.7	7.6	1.7	102	26	7.1	.1	.8	135	101	17
Sept. 1-10	490	---	10	7.9	22.0	3.3	.02	30	5.7	5.6	1.8	98	24	5.9	.1	.8	128	98	18
Sept. 11-20	253	---	13	8.1	23.7	2.1	.02	32	5.8	7.3	1.5	101	27	7.0	.1	.2	137	104	21
Sept. 21-30	282	---	5	7.6	25.0	3.3	.02	33	6.5	8.1	1.8	109	25	7.5	.1	.4	143	109	20
Average	2,537	---	15	7.3	17.7	4.0	0.04	24	4.6	4.4	1.8	68	24	4.6	0.1	1.5	105	79	23

1/ To convert to micromhos at 25°, multiply by 10.

PVP 712.1 7/6 I no. 24
APRIL 1952
OMMERCE
APHS

OHIO RIVER BASIN--Continued

CLARION RIVER NEAR PINEY, PA.

Chemical analyses, in parts per million, water year October 1946 to September 1947

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Kx10⁶ at 25°C.) 1/	Silica (SiO_2)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$	
																			Total	Non-carbonate
Oct. 1-10, 1946---	276	---	65	6.9	40.9	2.8	0.14	0.00	39	6.8	29	2.9	40	79	50	0.1	1.3	257	125	92
Oct. 11-20--------	1,027	---	70	6.7	40.1	2.6	.13	.00	38	6.4	27	3.4	41	77	49	.1	1.6	231	121	88
Oct. 21-31--------	1,183	---	35	7.0	30.8	5.0	.02	.00	30	4.9	18	6.9	33	61	35	.1	.3	191	95	68
Nov. 1-10---------	594	---	30	6.7	23.6	4.4	.04	.00	22	4.3	10	7.9	22	52	24	.1	.3	150	73	55
Nov. 11-20--------	627	---	31	6.5	22.5	4.4	.05	.00	21	4.3	14	2.7	20	52	23	.1	.3	142	70	54
Nov. 21-30--------	857	---	32	6.6	26.7	5.4	.19	.03	26	4.7	18	1.5	28	58	30	.2	.2	170	84	61
Dec. 1-10---------	636	---	50	6.8	24.2	5.4	.15	.06	24	4.3	15	1.9	24	51	27	.2	.4	157	78	58
Dec. 11-20--------	1,475	---	45	6.5	22.6	5.2	.04	.03	23	3.8	13	2.0	22	48	25	.2	.4	142	73	55
Dec. 21-31--------	1,623	---	42	6.4	16.8	5.3	.12	.03	16	3.1	9.5	1.4	17	39	14	.2	.4	105	53	39
Jan. 1-10, 1947---	3,857	---	10	6.0	11.1	4.6	.09	.03	11	2.5	4.7	1.3	11	27	8.6	.1	.6	67	38	29
Jan. 11-20--------	2,906	---	10	6.0	11.5	4.8	.07	.05	11	2.7	5.1	1.2	11	29	8.6	.1	.6	70	39	30
Jan. 21-31--------	4,183	---	9	5.9	10.1	4.6	.02	.07	9.0	2.8	4.3	1.0	5	27	7.0	.1	.6	62	34	30
Feb. 1-10---------	2,348	---	10	5.8	9.97	4.7	.07	.11	9.0	2.6	4.1	1.0	6	26	7.2	.1	.4	62	33	28
Feb. 11-20--------	962	---	10	5.2	13.0	5.0	.06	.16	11	3.3	5.9	1.4	6	34	10	.1	.4	81	41	36
Feb. 21-28--------	608	---	25	5.5	17.3	5.6	.22	.06	16	3.9	8.4	1.4	10	44	15	.1	.5	113	56	48
Mar. 1-10---------	505	---	28	5.5	20.1	5.4	.26	.00	18	4.2	11	1.5	13	49	18	.1	.4	130	62	52
Mar. 11-20--------	2,177	---	27	6.2	21.4	4.4	.04	---	20	4.2	12	2.4	16	49	21	.2	.4	141	67	54
Mar. 21-31--------	3,355	---	9	6.1	11.0	4.2	.02	---	9.8	2.4	5.0	1.5	9.0	26	9.0	.1	.5	71	34	27
Apr. 1-10---------	5,192	---	10	6.1	9.10	4.5	.10	.09	7.8	2.2	4.0	1.3	5	24	6.6	.0	.6	59	28	24
Apr. 11-20--------	2,033	---	15	6.1	10.8	4.8	.16	.07	9.4	2.6	4.8	1.2	7	28	8.1	.1	.4	74	34	28
Apr. 21-30--------	3,745	---	12	6.2	11.6	4.7	.23	.08	10	2.7	5.5	1.3	7	29	9.6	.1	.4	76	36	30
May 1-10----------	4,286	---	8	6.8	9.54	4.0	.12	.22	8.3	2.8	3.8	1.0	5	26	6.8	.1	.4	62	32	28
May 11-20---------	2,945	---	7	6.7	11.2	3.9	.22	.23	10	3.1	4.9	1.0	6	30	9.2	.1	.4	77	38	33
May 21-31---------	3,724	---	9	6.4	10.6	3.8	.15	.08	9.2	2.6	4.7	1.0	5	27	8.6	.1	.2	71	34	30
June 1-10---------	3,721	---	20	6.1	12.2	4.6	.24	.12	10	2.7	6.4	1.5	6	29	11	.1	.2	79	36	31
June 11-20--------	2,264	---	20	6.1	11.5	4.6	.18	.00	10	2.6	5.7	1.5	7	28	9.6	.1	.2	75	36	30
June 21-30--------	703	---	22	6.3	14.1	5.5	.26	.00	12	3.1	8.1	1.5	11	32	13	.1	.1	90	43	34
July 1-10---------	443	---	30	6.4	17.7	5.3	.30	.08	16	3.6	7.8	1.3	13	39	18	.1	.1	113	55	44
July 11-20--------	493	---	54	6.5	26.3	5.6	.83	.60	22	5.3	16	1.8	20	56	31	.1	.2	172	77	60
July 21-30--------	425	---	65	6.6	34.3	4.4	.99	.12	30	6.0	23	1.7	26	68	45	.2	.4	223	100	78
Aug. 1-10---------	237	---	60	6.3	34.8	4.6	.70	.20	30	6.2	25	2.3	25	65	46	.2	.5	225	100	80
Aug. 11-20--------	211	---	60	6.3	35.6	4.6	.54	.00	31	6.1	26	2.3	27	65	49	.2	.5	230	102	80
Aug. 21-31--------	523	---	65	6.4	39.2	4.8	.61	.55	34	6.8	29	3.0	32	71	55	.1	.5	254	113	87
Sept. 1-10--------	459	---	70	6.6	46.5	4.6	.67	.60	42	7.6	35	2.7	40	84	66	.1	.8	310	136	103
Sept. 11-20-------	604	---	80	6.7	47.7	4.2	.82	.80	44	7.8	35	3.2	45	83	69	.2	.8	317	142	105
Sept. 21-30-------	335	---	50	6.4	40.2	4.6	.52	.00	37	5.9	30	2.3	39	63	59	.2	1.1	247	117	85
Average------	1,729	---	33	6.3	22.1	4.6	0.26	0.13	20	4.2	14	2.1	18	47	25	0.1	0.5	142	67	52

1/ To convert to micromhos at 25°, multiply by 10.

CLARION RIVER NEAR PINEY, PA.

Chemical analyses, in parts per million, water year October 1947 to September 1948

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Ne)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Noncarbonate
Oct. 1-10, 1947---	136	--	55	6.4	349	5.0	0.90	.11	31	5.6	26		34	56	50	.1	.6	218	100	73
Oct. 11-20--------	119	--	55	6.6	395	4.2	1.5	2.2	36	6.1	21		34	59	56	.3	.7	253	124	96
Oct. 21-31--------	251	--	65	6.6	435	--	--	--	--	--	--		44	64	67	--	--	--	--	--
Nov. 1-10---------	171	--	75	6.7	476	--	--	--	--	--	--		48	70	74	--	--	--	--	--
Nov. 11-20--------	452	--	85	6.8	570	--	--	--	--	--	--		57	83	89	--	--	--	--	--
Nov. 21-30--------	771	--	70	6.7	513	--	--	--	--	--	--		48	73	82	--	--	--	--	--
Dec. 1-10---------	1,132	--	35	6.5	306	--	--	--	--	--	--		30	48	43	--	--	--	--	--
Dec. 11-20--------	1,284	--	25	6.4	199	--	--	--	--	--	--		17	35	25	--	--	--	--	--
Dec. 21-31--------	683	--	30	6.4	188	--	--	--	--	--	--		16	34	24	--	--	--	--	--
Jan. 1-10, 1948---	1,536	--	25	6.4	206	4.6	.15	.10	18	3.6	16		19	37	29	.1	.4	132	60	44
Jan. 11-20--------	776	--	28	6.6	172	--	--	--	--	--	--		15	32	20	--	--	--	--	--
Jan. 21-31--------	401	--	24	6.4	220	--	--	--	--	--	--		22	38	28	--	--	--	--	--
Feb. 1-10---------	282	--	28	6.5	247	--	--	--	--	--	--		26	40	31	--	--	--	--	--
Feb. 11-20--------	3,696	--	38	6.4	236	--	--	--	--	--	--		21	41	28	--	--	--	--	--
Feb. 21-29--------	3,542	--	20	6.4	110	--	--	--	--	--	--		8	26	9	--	--	--	--	--
Mar. 1-10---------	2,618	--	16	6.0	114	--	--	--	--	--	--		7	27	10	--	.8	--	--	--
Mar. 11-20--------	2,161	--	21	6.2	151	--	--	--	--	--	--		10	33	15	--	.4	--	--	--
Mar. 21-31--------	3,968	--	16	5.8	100	--	--	--	--	--	--		8	24	7.9	--	1.0	--	--	--
Apr. 1-10---------	2,589	--	12	5.9	128	4.5	.23	.23	11	3.2	5.9		5	32	11	.1	.4	83	41	37
Apr. 11-20--------	7,474	--	10	5.4	100	--	--	--	--	--	--		4	28	7.0	--	.7	--	--	--
Apr. 21-30--------	3,500	--	12	5.3	130	--	--	--	--	--	--		6	36	10	--	.5	--	--	--
May 1-10----------	2,941	--	15	5.6	128	--	--	--	--	--	--		3	33	11	--	.4	--	--	--
May 11-20---------	2,348	--	30	5.9	134	--	--	--	--	--	--		6	31	13	--	.4	--	--	--
May 21-31---------	1,395	--	25	6.0	135	--	--	--	--	--	--		7	31	13	--	.4	--	--	--
June 1-10---------	856	--	30	6.2	181	--	--	--	--	--	--		11	38	20	--	.4	--	--	--
June 11-20--------	1,038	--	30	6.1	231	--	--	--	--	--	--		17	48	26	--	.4	--	--	--
June 21-30--------	1,179	--	28	5.9	227	--	--	--	--	--	--		17	46	28	--	.3	--	--	--
July 1-10---------	380	--	25	6.0	221	--	--	--	--	--	--		16	46	25	--	.4	--	--	--
July 11-20--------	407	--	30	6.0	257	--	--	--	--	--	--		20	51	32	--	.4	--	--	--
July 21-31--------	949	--	35	6.1	327	--	--	--	--	--	--		27	59	45	--	.5	--	--	--
Aug. 1-10---------	634	--	32	6.6	306	--	--	--	--	--	--		20	57	41	--	.6	--	--	--
Aug. 11-20--------	832	--	35	6.7	321	--	--	--	--	--	--		20	61	42	--	.6	--	--	--
Aug. 21-31--------	383	--	36	6.6	335	--	--	--	--	--	--		22	61	45	--	.6	--	--	--
Sept. 1-10--------	184	--	35	6.7	337	6.2	.16	.05	29	6.4	24		25	63	46	.1	.4	208	99	78
Sept. 11-20-------	89	--	35	6.5	342	--	--	--	--	--	--		22	67	45	--	.6	--	--	--
Sept. 21-30-------	144	--	55	6.6	403	--	--	--	--	--	--		32	71	55	--	.8	--	--	--
Average------	1,414	--	34	--	256	--	--	--	--	--	--		21	47	33	--	--	--	--	--

PY.P712, 1/9
I.no. 241
APRIL 1952
OMMERCE
RAPHS

CLARION RIVER NEAR PINEY, PA.

Chemical analyses, in parts per million, water year October 1948 to September 1949

Date of collection	Mean discharge (second feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Non carbonate
Oct. 1-10, 1948	140	66	90	6.8	450	4.4	--	1.6	.50	40	7.3	35		39	77	65	.4	1.2	286	130	98
Oct. 11-20	270	60	120	6.8	504	--	--	--	--	--	--	--		54	76	73	--	1.6	--	--	--
Oct. 21, 23-31	98	--	120	6.9	549	--	--	--	--	--	--	--		50	85	81	--	1.6	--	--	--
Oct. 22	163	55	100	6.2	293	--	--	--	--	--	--	--		30	49	31	--	1.8	--	--	--
Nov. 1-10	327	--	90	6.9	575	--	--	--	--	--	--	--		50	91	88	--	1.0	--	--	--
Nov. 11-20	460	--	90	6.8	572	4.6	--	.10	.00	51	8.0	48		53	91	88	.0	1.4	366	160	117
Nov. 21-30	1,214	48	85	6.9	500	--	--	--	--	--	--	--		43	77	73	--	.9	--	--	--
Dec. 1-10	1,014	44	40	6.8	276	--	--	--	--	--	--	--		23	47	37	--	.2	--	--	--
Dec. 11-20	2,687	--	30	6.9	205	5.5	--	.12	.00	18	4.2	11		13	41	24	.0	.6	126	62	52
Dec. 21-31	1,841	38	30	6.7	145	--	--	--	--	--	--	--		6	35	12	--	.6	--	--	--
Jan. 1-10	3,995	--	25	6.4	147	--	--	--	--	--	--	--		12	34	17	--	.5	--	--	--
Jan. 11-20	2,036	40	20	6.8	135	5.5	--	.22	.10	12	3.5	5.4		6	32	12	.1	1.0	77	44	39
Jan. 21-31	4,983	--	5	6.2	142	--	--	.15	--	--	--	--		6	36	12	.1	.8	--	--	--
Feb. 1-10	2,118	--	5	6.1	115	--	--	--	--	--	--	--		2	36	10	--	.3	--	--	--
Feb. 11-20	3,170	--	10	6.2	169	--	--	--	--	--	--	--		6	43	18	--	.4	--	--	--
Feb. 21-28	3,309	--	10	6.4	121	--	--	--	--	--	--	--		3	38	8	--	.3	--	--	--
Mar. 1-10	2,167	39	15	6.4	133	--	--	--	--	--	--	--		7	47	10	--	.2	--	--	--
Mar. 11-20	1,485	--	20	6.6	146	--	--	--	--	--	--	--		8	48	14	--	.4	--	--	--
Mar. 21-31	2,325	--	25	6.1	159	--	--	--	--	--	--	--		10	37	17	--	.4	--	--	--
Apr. 1-10	2,873	51	25	6.5	135	5.7	--	.34	.05	12	3.3	8.2		8	34	13	.2	.6	89	44	37
Apr. 11-20	2,454	--	25	6.3	133	--	--	--	--	--	--	--		8	33	11	--	.2	--	--	--
Apr. 21-30	3,491	50	25	6.5	129	--	--	--	--	--	--	--		12	34	11	--	.4	--	--	--
May 1-10	1,409	--	25	6.5	118	--	--	--	--	--	--	--		9	30	11	--	.3	--	--	--
May 11-20	894	65	40	6.6	154	--	--	--	--	--	--	--		8	37	12	--	.4	--	--	--
May 21-31	4,669	--	40	6.8	124	--	--	--	--	--	--	--		12	30	10	--	.3	--	--	--
June 1-10	782	--	12	6.4	113	--	--	--	--	--	--	--		10	27	8.8	.1	.2	--	--	--
June 11-20	346	--	30	6.4	131	--	--	.04	--	--	--	--		8	34	12	.1	.4	--	--	--
June 21-30	267	--	30	6.5	168	--	--	.02	--	--	--	--		10	40	15	.2	.4	--	--	--
July 1-10	275	70	25	6.7	204	5.1	--	.13	.00	21	4.2	11	1.9	15	49	24	.0	.9	125	70	57
July 11-20	344	--	30	6.7	255	4.3	--	.18	.00	20	4.7	17	2.3	21	56	26	.0	1.1	149	69	52
July 21-31	446	--	10	6.4	292	3.8	--	.07	.25	22	4.8	19	3.9	12	65	28	--	1.4	174	75	65
Aug. 1-10	405	--	60	6.5	395	3.6	--	.90	1.1	34	6.7	27	2.4	25	81	50	--	1.1	239	112	92
Aug. 11-20	187	76	70	6.6	455	3.6	--	.18	.75	39	6.7	32	2.5	33	88	58	--	1.8	283	125	98
Aug. 21-31	139	--	50	7.0	513	4.6	--	.74	.00	49	11	34	14	50	100	68	.0	2.0	330	168	127
Sept. 1-10	135	72	50	7.0	533	4.6	--	.46	.00	51	10	31	16	56	98	69	.0	2.0	346	168	122
Sept. 11-20	101	--	120	6.7	532	--	--	--	--	--	--	--		38	102	72	--	1.6	--	--	--
Sept. 21-30	132	--	110	6.8	543	--	--	--	--	--	--	--		58	105	74	--	1.4	--	--	--
Average	1,473	--	46	6.6	277	--	--	--	--	--	--	--		22	56	34	--	.9	--	--	--

Kiskiminetas River at Leechburg, Pa.

Chemical analyses, in parts per million, water year October 1946 to September 1947

Date of collection	Mean discharge (second feet)	Temperature (°F.)	Color	pH	Specific conductance (Kx10⁶ at 25°C.) 1/	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$: Total	Hardness as $CaCO_3$: Noncarbonate	Total acidity as H_2SO_4
Oct. 1-10, 1946	460	62	4	2.90	149	19	14	2.50	3.1	90	31	33	4.8	0	574	13	0.2	0.9	786	514	514	196
Oct. 11-20	891	58	5	3.00	125	16	9.1	2.50	2.8	76	26	32	5.1	0	474	13	.2	1.0	659	415	415	154
Oct. 21-31	1,759	57	4	3.30	74.2	12	9.2	.23	1.8	46	17	14	2.9	0	274	8.5	.1	1.5	398	267	267	92
Nov. 1-10	949	55	4	3.15	87.6	13	7.2	.26	1.8	52	18	19	4.6	0	308	4.5	.3	1.4	456	288	288	108
Nov. 11-20	804	46	3	3.05	108	15	7.9	.43	2.6	63	22	25	4.8	0	383	12	.3	1.4	555	347	347	132
Nov. 21-30	894	42	2	3.10	98.7	13	7.4	.42	2.4	58	20	24	4.6	0	350	11	.3	1.4	508	318	318	116
Dec. 1-10	741	38	4	3.15	91.5	13	6.6	.23	1.8	57	20	23	4.1	0	340	8	.3	1.4	490	305	305	106
Dec. 11-20	1,960	38	3	3.50	54.9	11	5.1	.07	2.0	40	14	14	3.3	0	222	6.8	.2	2.8	322	206	206	62
Dec. 21-31	2,589	36	3	3.45	54.1	10	4.2	.07	1.8	38	13	13	2.8	0	202	3.6	.2	3.1	298	193	193	58
Jan. 1-10, 1947	4,491	36	4	3.65	35.1	8.1	2.9	.03	1.2	23	7.8	6.6	1.7	0	119	2	.2	3.7	183	119	119	42
Jan. 11-20	4,046	40	4	3.70	37.4	7.8	3.6	.03	1.0	27	9.9	6.5	2.2	0	132	6	.2	3.8	203.	140	140	44
Jan. 21-31	5,055	39	5	3.60	38.4	8.4	3.7	.05	1.0	25	8.7	7.1	1.6	0	138	4.4	.2	3.9	202	133	133	44
Feb. 1-10	2,863	—	1	3.50	50.0	8.4	3.8	.10	1.0	33	12	11	3.0	0	175	3.2	.2	4.6	268	171	171	54
Feb. 11-20	1,902	—	2	3.40	63.4	10	5.3	.78	1.2	43	16	17	3.5	0	237	6.6	.3	3.1	359	228	228	72
Feb. 21-28	1,344	32	6	5.20	44.1	7.4	1.0	.67	.80	38	12	24	3.8	0	174	9.2	.2	5.2	295	144	137	—
Mar. 1-10	1,541	33	2	3.35	69.3	11	5.4	.16	1.3	48	18	19	3.7	0	259	7.4	.2	3.5	394	251	251	77
Mar. 11-20	5,186	37	2	3.50	42.5	8.7	3.3	.06	1.0	28	10	7.7	2.4	0	142	5.0	.2	3.4	219	148	148	46
Mar. 21-31	5,485	38	2	3.55	38.1	8.2	3.3	.05	.80	26	9.4	6.1	2.0	0	129	4.4	.2	3.4	201	138	138	44
Apr. 1-10	4,550	48	2	3.60	43.9	8.7	3.7	.08	.85	26	9.7	7.3	2.2	0	151	4.0	.1	2.9	223	139	139	53
Apr. 11-20	1,948	55	2	3.45	69.8	12	6.2	.21	1.7	44	15	13	3.4	0	250	6.4	.2	2.1	369	228	228	86
Apr. 21-30	4,221	55	2	3.60	53.3	9.4	4.6	.12	1.5	33	12	10	2.6	0	192	5.0	.1	2.3	283	173	173	64
May 1-10	4,359	54	2	3.65	42.3	8.8	3.5	.07	1.0	27	9.4	7.2	2.2	0	148	4.1	.2	2.2	223	139	139	50
May 11-20	5,639	60	3	3.75	39.5	8.5	3.2	.05	.80	26	9.3	6.7	2.2	0	139	3.8	.2	2.2	213	132	132	46
May 21-31	4,641	65	2	3.60	48.0	9.7	4.2	.11	1.0	29	10	7.4	2.0	0	165	4.5	.1	2.1	253	151	151	56
June 1-10	6,807	68	1	3.50	60.6	11	5.8	.22	1.8	36	13	11	3.7	0	214	4.8	.2	3.2	320	196	196	76
June 11-20	3,792	68	0	3.50	58.2	11	5.8	.21	2.1	35	13	11	3.0	0	206	3.8	.2	2.8	314	194	194	76
June 21-30	1,137	75	2	3.20	120.0	17	13	1.10	4.0	68	23	20	4.7	0	448	8.5	.3	1.9	637	382	382	178
July 1-10	932	75	3	3.20	133	18	16	1.80	4.8	79	28	25	5.2	0	512	11	.3	1.8	729	451	451	198
July 11-20	1,738	78	1	3.30	97.4	14	11	1.20	3.3	57	21	17	4.2	0	356	12	.3	2.5	509	326	326	134
July 21-31	1,668	73	0	3.20	76.0	12	6.6	.29	2.6	44	17	14	4.5	0	269	5.8	.1	3.9	377	258	258	90
Aug. 1-10	1,339	79	0	3.20	82.9	13	7.0	.22	3.8	50	19	17	5.1	0	303	5.5	.1	2.6	424	285	285	102
Aug. 11-20	795	81	1	3.10	123	18	11	1.40	6.5	77	28	25	7.9	0	476	9.2	.1	3.0	669	429	429	160
Aug. 21-31	1,906	79	0	3.30	74.0	13	7.0	.34	3.8	46	18	13	5.4	0	272	5.8	.2	3.9	393	263	263	92
Sept. 1-10	951	77	0	3.15	97.7	15	9.2	1.20	4.0	58	22	19	6.0	0	361	6.0	.1	3.3	512	337	337	126
Sept. 11-20	750	77	0	3.25	113	16	11	1.30	3.4	70	25	23	6.6	0	432	18	.3	1.5	607	380	380	156
Sept. 21-30	503	63	0	3.20	129	17	11	1.70	4.3	84	29	30	7.1	0	507	18	.4	1.4	712	438	438	178
Average	2,545	56	2	3.40	75.6	12	6.7	0.56	2.2	47	17	16	3.9	0	279	7.4	0.2	2.6	405	251	251	--

1/ To convert to micromhos at 25°, multiply by 10.

PWP 712, 1/9 Eng. 241
APRIL 1952
OMMERCE
RAPHS

KISKIMINETAS RIVER AT LEECHBURG, PA.

Chemical analyses, in parts per million, water year October 1947 to September 1948

Date of collection	Mean discharge (second feet)	Temperature (°F.)	Color	pH	Specific conductance (micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Non carbonats	Total acidity as H_2SO_4
Oct. 1-10, 1947---	426	61	7	2.95	1,580	18	12	4.2	4.8	101	35	58		0	616	20	0.4	1.3	863	546	--	223
Oct. 11-20--------	359	66	5	3.10	1,600	19	13	2.9	4.6	112	34	65		0	640	18	.4	.3	934	553	--	214
Oct. 21-31--------	407	60	4	2.95	1,740	--	--	4.0	--	--	--	--		0	690	21	--	--	--	--	--	232
Nov. 1-10---------	665	--	--	--	--	--	--	--	--	--	--	--		--	--	--	--	--	--	--	--	--
Nov. 11-20--------	1,058	44	4	3.20	981	--	--	.60	--	--	--	--		0	360	12	--	--	--	--	--	130
Nov. 21-30--------	2,231	40	7	3.45	623	--	--	.28	--	--	--	--		0	226	9	--	--	--	--	--	74
Dec. 1-10---------	1,872	39	0	3.35	616	--	--	.20	--	--	--	--		0	224	10	--	--	--	--	--	73
Dec. 11-20--------	2,065	35	2	3.55	469	--	--	.11	--	--	--	--		0	164	7	--	--	--	--	--	53
Dec. 21-31--------	1,000	33	3	3.30	746	11	5.9	.24	3.3	46	16	19		0	261	10	.2	2.8	387	248	--	86
Jan. 1-10, 1948---	4,419	36	1	3.50	429	--	--	.10	--	--	--	--		0	150	6	--	--	--	--	--	46
Jan. 11-20--------	1,984	32	--	--	--	--	--	--	--	--	--	--		--	--	--	--	--	--	--	--	--
Jan. 21-31--------	1,315	32	1	3.25	848	--	--	1.9	--	--	--	--		0	323	9	--	--	--	--	--	109
Feb. 1-10---------	975	32	4	3.30	1,010	--	--	3.2	--	--	--	--		0	398	10	--	--	--	--	--	134
Feb. 11-14--------	3,100	--	1	3.35	833	--	--	.80	--	--	--	--		0	296	10	--	--	--	--	--	105
Feb. 15-20--------	9,760	37	1	3.85	306	--	--	.06	--	--	--	--		0	97	4	--	--	--	--	--	34
Feb. 21-29--------	6,123	40	5	3.60	396	--	--	.08	--	--	--	--		0	132	5	--	--	--	--	--	43
Mar. 1-10---------	4,359	40	4	3.50	447	--	--	1.1	--	--	--	--		0	146	4	--	--	--	--	--	54
Mar. 11-20--------	4,302	43	5	3.40	548	--	--	.24	--	--	--	--		0	184	4	--	3.8	--	--	--	63
Mar. 21-31--------	6,148	51	3	3.60	391	--	--	.38	--	--	--	--		0	134	4	--	3.8	--	--	--	41
Apr. 1-10---------	4,230	53	0	3.45	515	9.0	5.2	.14	1.3	29	12	6.4		0	169	4.6	.1	3.6	268	172	--	66
Apr. 11-20--------	18,273	51	3	3.80	361	--	--	.10	--	--	--	--		0	123	3	--	5.6	--	--	--	38
Apr. 21-30--------	5,505	60	1	3.40	718	--	--	.41	--	--	--	--		0	245	5	--	3.0	--	--	--	98
May 1-10----------	7,750	56	2	3.65	405	--	--	.10	--	--	--	--		0	138	2	--	2.9	--	--	--	48
May 11-20---------	4,470	64	0	3.50	534	--	--	.11	--	--	--	--		0	182	5	--	2.9	--	--	--	70
May 21-31---------	2,233	68	5	3.35	813	--	--	.38	--	--	--	--		0	288	7	--	2.6	--	--	--	102
June 1-10---------	1,480	72	5	3.30	946	--	--	.43	--	--	--	--		0	342	8	--	2.0	--	--	--	130
June 11-19--------	2,754	73	0	3.40	748	--	--	.26	--	--	--	--		0	267	6	--	2.4	--	--	--	97
June 20-----------	20,400	--	0	4.20	269	--	--	.06	--	--	--	--		0	100	4	--	4.6	--	--	--	23
June 21-30--------	5,631	74	2	3.55	430	--	--	.37	--	--	--	--		0	147	5	--	4.5	--	--	--	59
July 1-10---------	2,828	75	5	3.35	593	--	--	.14	--	--	--	--		0	209	6	--	2.2	--	--	--	82
July 11-20--------	2,503	78	3	3.30	680	--	--	.16	--	--	--	--		0	241	6	--	2.0	--	--	--	97
July 21-31--------	1,826	78	2	3.15	825	--	--	.38	--	--	--	--		0	283	7	--	1.9	--	--	--	116
Aug. 1-10---------	1,115	75	1	3.00	1,120	--	--	1.0	--	--	--	--		0	408	10	--	1.7	--	--	--	164
Aug. 11-20--------	884	74	2	3.00	1,180	--	--	.93	--	--	--	--		0	437	10	--	1.5	--	--	--	164
Aug. 21-31--------	720	80	1	2.95	1,310	--	--	1.8	--	--	--	--		0	486	12	--	1.6	--	--	--	186
Sept. 1-10--------	454	74	5	2.80	1,660	20	16	2.6	8.0	112	46	18		0	659	16	.4	1.2	951	671	--	260
Sept. 11-20-------	384	72	4	2.85	1,790	--	--	7.7	--	--	--	--		0	710	19	--	1.5	--	--	--	288
Sept. 21-30-------	392	66	10	2.70	2,060	--	--	.38	--	--	--	--		0	801	18	--	27	--	--	--	415
Average-----	3,081	56	3	--	848	--	--	2.1	--	--	--	--		0	312	8.9	--	--	--	--	--	--

KISKIMINETAS RIVER AT LEECHBURG, PA.

Chemical analyses, in parts per million, water year October 1948 to September 1949

Date of collection	Mean discharge (second feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Non carbonate	Total acidity as H_2SO_4
Oct. 1-10, 1948	581	61	15	2.60	2200	21	--	27	2.0	123	43	48		0	821	19	15	26	1170	838	838	821
Oct. 11-20	949	58	10	2.65	1810	--	--	32	--	--	--	--		0	613	11	--	38	--	--	--	474
Oct. 21-31	632	58	7	2.70	1740	--	--	19	--	--	--	--		0	585	12	--	26	--	--	--	445
Nov. 1-10	1,265	61	4	2.80	1630	--	--	84	--	--	--	--		0	523	8	--	--	--	--	--	478
Nov. 11-20	1,214	54	10	2.75	1600	19	11	30	3.6	56	20	4.6		0	438	12	.0	13	663	480	480	331
Nov. 21-30	2,552	53	5	2.9	1080	--	--	16	--	--	--	--		0	286	8.2	8.5	23	--	--	--	235
Dec. 1-10	3,013	49	5	3.3	658	--	--	.60	--	--	--	--		0	186	6.8	1.2	12	--	--	--	96
Dec. 11-20	6,157	49	5	3.40	513	--	--	.32	--	--	--	--		0	135	8	.8	3.4	--	--	--	157
Dec. 21-31	4,398	41	5	3.10	815	--	--	8.4	--	--	--	--		0	247	10	12	3.8	--	--	--	225
Jan. 1, 2, 1949	7,250	--	--	--	--	--	--	--	--	--	--	--		--	--	--	--	--	--	--	--	--
Jan. 3-10	7,436	44	5	3.55	434	--	--	.24	--	--	--	--		0	124	12	.4	2.4	--	--	--	84
Jan. 11-15	3,520	47	10	3.30	733	11	8.0	.54	2.0	34	13	5.7		0	200	6	2.0	7.5	306	215	215	388
Jan. 16-20	2,406	51	14	3.00	1050	9.2	9.6	8.3	3.0	44	18	15		0	268	6	20	18	435	321	321	547
Jan. 21-31	10,980	50	5	3.60	415	--	--	2.1	--	--	--	--		0	128	8	.8	2.8	--	--	--	111
Feb. 1-10	5,096	44	10	3.4	630	--	--	.35	--	--	--	--		0	201	3	1.4	7.1	--	--	--	105
Feb. 11-20	5,330	48	10	3.4	545	--	--	.25	--	--	--	--		0	196	4	1.2	7.0	--	--	--	72
Feb. 21-28	7,510	47	5	3.7	384	--	--	.10	--	--	--	--		0	141	4	.2	4.7	--	--	--	48
Mar. 1-10	5,088	47	5	3.4	588	--	--	.35	--	--	--	--		0	198	4	1.5	6.5	--	--	--	72
Mar. 11-20	3,900	45	10	3.3	690	--	--	.70	--	--	--	--		0	228	5	2.0	9.0	--	--	--	92
Mar. 21-31	3,601	56	5	3.3	735	--	--	.85	--	--	--	--		0	236	6	4.0	9.5	--	--	--	98
Apr. 1-10	5,666	49	5	3.60	437	9.4	4.0	.11	1.4	26	8.9	7.5		0	143	1.2	.9	2.6	215	139	139	56
Apr. 11-20	3,285	53	10	3.25	656	--	--	.25	--	--	--	--		0	216	4	4.0	5.4	--	--	--	91
Apr. 21-30	3,526	58	10	3.40	601	--	--	.22	--	--	--	--		0	200	2	3.2	5.4	--	--	--	79
May 1-10	1,798	71	10	3.15	860	--	--	4.2	--	--	--	--		0	292	8	9.0	7.4	--	--	--	154
May 11-20	1,048	67	10	3.10	1180	--	--	4.1	--	--	--	--		0	415	2	8.0	6.8	--	--	--	178
May 21, 22	1,800	--	--	--	--	--	--	--	--	--	--	--		--	--	--	--	--	--	--	--	--
May 23-31	2,153	64	10	3.15	849	--	--	4.1	--	--	--	--		0	303	1	6.0	6.9	--	--	--	122
June 1-10	923	74	5	3.05	1090	14	9.1	1.4	2.3	58	23	26	12	0	359	11	2.5	10	524	348	348	161
June 11-20	790	80	5	3.00	1280	14	11	2.8	3.0	80	30	32	13	0	472	13	2.5	10	698	453	453	176
June 21-30	705	77	5	2.90	1300	14	12	2.9	2.7	75	26	34	7.8	0	469	13	2.5	10	655	442	442	183
July 1-2, 4-6, 8-10	689	85	5	3.10	1120	16	11	.76	2.8	76	23	35	14	0	437	13	2.5	5.4	653	397	397	143
July 3, 7	721	87	5	10.0	1300	9.2	--	.36	--	27	5.5	207	39	[a]65	484	13	--	5.2	841	90	36	--
July 11-20	2,789	77	3	3.1	637	11	1.3	2.8	3.6	52	15	16	14	0	272	5.5	4.8	14	419	262	262	133
July 21-31	1,714	--	5	2.9	947	11	1.0	4.0	2.6	41	20	17	7.4	0	271	8.5	7.5	21	404	280	280	161
Aug. 1-10	1,370	79	5	2.9	1040	16	.8	4.2	1.0	48	27	22	5.0	0	313	8.5	8	18	461	320	320	166
Aug. 11-20	1,039	82	4	2.85	1260	26	1.1	4.5	5.2	66	28	39	1.3	0	409	9.2	7.2	1.3	615	382	382	186
Aug. 21	1,310	72	5	5.7	1250	6.5	--	.15	--	3.0	2.6	232	16	120	414	10	.2	11	812	18	0	--
Aug. 22-31	769	76	5	2.75	1420	32	.6	28	8.6	69	33	36	12	0	443	14	34	4.6	720	505	505	329
Sept. 1-10	733	72	0	3.10	1290	18	18	8.2	8.0	72	30	10		0	436	12	10	12	661	484	484	209
Sept. 11-20	483	70	0	2.95	1570	21	18	8.2	6.4	88	35	27		0	533	16	12	9.5	841	560	560	235
Sept. 21-30	508	64	0	2.95	1660	21	21	3.4	8.0	102	40	23		0	598	18	7.0	9.0	900	623	623	208
Average	2,836	61	6	3.35	1031	--	--	8.1	--	--	--	--		--	339	8.6	5.8	10	--	--	--	212

[a]Includes equivalent of 14 parts per million of carbonate (CO_3)

PY'P712, 17/9
I.no. 241
APRIL 1952
OMMERCE
APHS

Monongahela River at Cherleroi, Pa.

Chemical analyses, in parts per million, water year October 1946 to September 1947

Date of collection	Mean discharge (second feet)	Temperature (°F.)	Color	pH	Specific conductance (Kx10⁶ at 25°C.) 1/	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Noncarbonate	Total acidity as H_2SO_4
Oct. 1-10, 1946	553	64	6	3.25	109	10	8.3	0.29	2.0	64	25	67		0	433	20	0.6	0.6	644	336	336	104
Oct. 11-20	700	61	5	3.25	112	12	9.3	.33	2.4	66	25	68		0	460	16	.6	.6	682	356	356	110
Oct. 21-31	1,656	59	6	3.25	110	12	9.4	.23	2.5	67	24	66		0	456	16	.4	.6	674	355	355	104
Nov. 1-10	1,270	58	5	3.20	101	10	8.4	.33	1.7	57	20	55		0	394	14	.4	.6	568	311	311	110
Nov. 11-20	1,188	50	5	3.40	82.4	8.8	5.6	.19	1.6	49	17	51		0	329	10	.4	.7	484	248	248	70
Nov. 21-30	1,818	46	2	3.60	81.0	8.2	4.8	.08	1.1	53	16	59		0	328	18	—	1.0	494	239	239	56
Dec. 1-10	1,793	44	2	3.55	78.7	7.6	4.8	.11	1.3	53	17	44		0	300	20	—	1.7	466	246	246	62
Dec. 11-20	4,710	44	2	3.70	48.6	5.2	2.3	.06	.75	35	10	21		0	172	12	—	4.2	273	153	153	33
Dec. 21-31	8,386	42	3	4.10	31.5	5.2	1.0	.03	.45	22	6.8	17		0	103	14	—	3.3	179	93	93	18
Jan. 1-10, 1947	13,800	40	3	4.7	19.0	4.8	.4	.03	.13	16	4.4	9.1		3	64	6.0	—	3.6	113	61	58	11
Jan. 13-15, 18	12,310	40	2	4.40	51.4	5.5	1.0	.05	.23	19	6.1	62		0	79	92	—	3.1	272	80	80	11
Jan. 11, 12, 16, 17, 19, 20	17,020	42	2	4.40	23.3	5.8	.8	.04	.22	20	5.4	7.6		0	72	12	—	3.4	133	78	78	11
Jan. 21-31	18,930	40	1	4.30	19.8	4.8	1.0	.03	.20	15	4.6	6.4		0	63	7.2	—	3.2	110	64	64	14
Feb. 1	17,200	--	--	4.6	53.7	—	—	—	--	--	—	—		—	99	—	—	—	—	—	—	20
Feb. 2-10	7,839	37	2	4.10	29.1	5.8	2.3	.03	.21	20	5.9	13		0	68	19	—	2.9	165	92	92	17
Feb. 11-20	4,951	33	3	3.75	36.1	6.2	4.4	.35	.35	24	7.8	5.1		0	128	2.6	—	3.0	201	128	128	32
Feb. 21-28	3,315	32	1	3.60	48.3	7.4	5.9	.05	.47	33	10	9.8		0	176	3.6	—	3.0	272	170	170	40
Mar. 1-10	5,442	32	2	3.70	42.5	6.4	5.5	.07	.40	28	8.9	8.3		0	150	5.5	—	3.0	234	148	148	36
Mar. 11-15	16,160	34	1	4.10	32.1	6.4	1.5	.03	.50	24	7.4	11		0	116	3.5	—	3.5	190	104	104	17
Mar. 16-20	18,740	35	1	4.8	16.5	2.8	.2	.02	.24	15	4.1	6.9		3	59	3.2	—	3.3	102	56	53	4
Mar. 21-31	16,280	39	3	4.45	19.2	4.2	.5	.01	.25	14	4.0	10		0	63	6.8	—	3.2	114	56	56	7
Apr. 1-10	14,020	46	2	4.30	18.3	3.8	.7	.02	.20	12	3.7	8.7		0	60	4.0	—	3.0	101	52	52	12
Apr. 11-20	4,763	57	2	4.25	25.5	5.0	1.5	.03	.29	18	5.7	11		0	92	3.8	—	3.1	151	79	79	15
Apr. 21-30	3,321	56	1	4.15	33.8	4.8	1.8	.03	.45	24	7.9	16		0	123	5.8	—	3.2	203	106	106	19
May 1-10	7,869	56	3	4.20	33.0	5.2	2.1	.03	.15	24	7.2	12		0	118	3.9	—	2.2	188	105	105	26
May 11-20	7,349	58	2	4.6	29.7	5.0	1.2	.03	.16	26	7.2	12		1	114	4.1	—	2.1	184	102	101	17
May 21-31	10,080	65	2	5.2	24.5	4.8	—	.02	.11	24	6.6	9.6		4	93	4.5	—	1.8	154	87	84	—
June 1-10	10,230	66	2	5.9	26.9	5.8	—	.07	.13	25	7.0	14		7	103	4.8	—	2.1	171	91	85	—
June 11-20	6,940	69	1	5.5	21.5	4.8	—	.02	.12	20	5.6	10		6	82	3.2	—	1.2	132	73	68	—
June 21-30	1,675	72	3	6.0	32.0	5.0	—	.02	.50	26	8.3	22		6	127	5.8	—	2.4	208	99	94	6
July 1-10	2,708	74	3	4.15	43.0	5.8	2.6	.04	.50	32	10	27		0	179	7.0	—	1.2	278	139	139	26
July 11-20	6,489	75	3	3.90	45.2	6.6	3.9	.09	.75	32	11	19		0	179	6.0	—	1.3	272	154	154	41
July 21-31	3,815	75	3	4.9	35.2	6.8	1.1	.03	.55	32	9.1	19		4	147	6.2	—	1.5	232	124	121	14
Aug. 1-10	4,222	75	2	3.95	45.0	6.2	3.1	.07	.55	33	11	22		0	180	7.0	—	1.0	275	151	151	38
Aug. 11-20	2,908	79	1	3.80	51.4	6.8	2.9	.05	1.1	38	12	22		0	197	8.1	—	2.5	316	171	171	40
Aug. 21-31	4,220	79	1	3.70	43.3	6.4	3.0	.14	.75	27	8.7	17		0	153	5.8	—	1.1	236	132	132	46
Sept. 1-10	2,699	78	0	3.80	49.5	6.6	2.9	.38	.91	32	10	25		0	183	7.2	—	.9	284	148	148	46
Sept. 11-20	3,178	76	0	3.70	49.9	6.6	3.2	.30	.80	29	9.7	23		0	175	6.8	—	.8	263	142	142	50
Sept. 21-30	2,348	73	2	3.80	49.5	6.0	2.6	.16	.81	32	10	24		0	179	7.9	—	1.0	281	145	145	42
Average	6,383	55	2	—	46.0	6.3	—	0.10	0.68	31	10	—		--	172	11	—	2.1	271	—	—	—

1/ To convert to micromhos at 25°, multiply by 10.

MONONGAHELA RIVER AT CHARLEROI, PA.

Chemical analyses, in parts per million, water year October 1947 to September 1948

Date of collection	Mean discharge (second feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$		Total acidity as H_2SO_4
																				Total	Noncarbonates	
Oct. 1-10, 1947---	1,102	66	1	3.70	557	6.2	2.8	0.13	0.80	37	12	33		0	215	12	0.2	0.8	337	169	169	45
Oct. 11-20-------	778	68	2	3.70	700	8.0	3.9	.27	1.4	49	16	36		0	272	12	.3	.8	444	223	223	56
Oct. 21-31-------	838	69	1	3.65	712	--	--	.22	--	--	--	--		0	295	14	--	1.1	--	--	--	68
Nov. 1-10--------	2,273	60	0	3.45	740	--	--	.25	--	--	--	--		0	287	16	--	1.1	--	--	--	75
Nov. 11-20-------	5,582	52	0	3.70	517	--	--	.12	--	--	--	--		0	192	12	--	1.1	--	--	--	52
Nov. 21-30-------	4,643	45	0	4.30	356	--	--	.01	--	--	--	--		0	134	8	--	--	--	--	--	15
Dec. 1-10--------	5,094	42	2	4.25	347	--	--	.02	--	--	--	--		0	130	8	--	--	--	--	--	14
Dec. 11-20-------	6,836	39	1	4.8	241	--	--	.01	--	--	--	--		2	90	5	--	--	--	--	--	9
Dec. 21-31-------	2,547	35	0	4.30	274	--	--	.02	--	--	--	--		0	101	5	--	--	--	--	--	10
Jan. 1-10, 1948---	20,458	39	4	4.30	241	5.2	.7	.03	.80	20	5.8	9.1		0	88	4.4	.1	3.2	150	81	81	11
Jan. 11-20-------	9,544	36	1	4.00	267	--	--	.04	--	--	--	--		0	94	3	--	--	--	--	--	22
Jan. 21-31-------	3,193	33	1	3.80	369	--	--	.04	--	--	--	--		0	130	5	--	--	--	--	--	31
Feb. 1-10--------	2,632	34	0	3.60	601	--	--	.08	--	--	--	--		0	186	5	--	--	--	--	--	41
Feb. 11-13-------	7,890	34	1	3.40	578	--	--	.12	--	--	--	--		0	203	7	--	--	--	--	--	56
Feb. 14-20-------	46,300	38	0	4.15	196	--	--	.03	--	--	--	--		0	67	1	--	--	--	--	--	13
Feb. 21-29-------	2,442	41	3	3.85	218	--	--	.03	--	--	--	--		0	73	1	--	--	--	--	--	18
Mar. 1-10--------	20,260	43	1	4.05	206	--	--	.03	--	--	--	--		0	71	3	--	--	--	--	--	16
Mar. 11-20-------	8,883	44	1	3.90	296	--	--	.04	--	--	--	--		0	107	4	--	2.3	--	--	--	26
Mar. 21-31-------	22,791	52	3	4.35	230	--	--	.04	--	--	--	--		0	86	3.4	--	2.4	--	--	--	16
Apr. 1-10--------	12,485	55	2	4.00	273	5.0	1.9	.02	.42	21	7.4	7.3		0	104	2.5	.1	3.8	166	99	99	23
Apr. 11,12,15-20---	32,820	54	3	4.10	303	--	--	.04	--	--	--	--		0	112	2.5	--	2.0	--	--	--	30
Apr. 13,14-------	102,100	53	3	5.0	176	--	--	.02	--	--	--	--		2	68	2.2	--	3.2	--	--	--	6
Apr. 21-30-------	7,945	59	0	3.75	471	--	--	.13	--	--	--	--		0	172	4.2	--	1.5	--	--	--	56
May 1-4----------	16,812	60	5	3.40	665	--	--	.12	--	--	--	--		0	194	4	--	1.5	--	--	--	80
May 5-10---------	22,950	58	0	4.15	216	--	--	.02	--	--	--	--		0	77	3	--	1.6	--	--	--	18
May 11-20--------	12,620	62	0	4.10	270	--	--	.02	--	--	--	--		0	103	3	--	1.5	--	--	--	25
May 21-31--------	4,509	64	3	3.90	395	--	--	.05	--	--	--	--		0	154	6	--	1.2	--	--	--	38
June 1-10--------	5,944	68	2	3.65	486	--	--	.10	--	--	--	--		0	179	6	--	1.1	--	--	--	64
June 11-20-------	10,229	70	0	3.85	344	--	--	.04	--	--	--	--		0	124	5	--	1.2	--	--	--	30
June 21-30-------	5,494	74	2	4.30	285	--	--	.02	--	--	--	--		0	110	4	--	2.4	--	--	--	22
July 1-10--------	5,807	76	1	3.80	381	--	--	.04	--	--	--	--		0	138	6	--	2.9	--	--	--	40
July 11-20-------	7,092	76	4	3.75	428	--	--	.06	--	--	--	--		0	156	5	--	2.9	--	--	--	40
July 21-31-------	16,126	74	1	4.35	205	--	--	.03	--	--	--	--		0	72	3	--	2.2	--	--	--	18
Aug. 1-10--------	11,406	73	1	4.05	266	--	--	.02	--	--	--	--		0	92	4	--	2.6	--	--	--	26
Aug. 11-20-------	4,661	72	6	3.90	340	--	--	.04	--	--	--	--		0	120	6	--	2.2	--	--	--	33
Aug. 21-31-------	2,288	76	3	3.70	461	--	--	.08	--	--	--	--		0	169	6	--	1.7	--	--	--	53
Sept. 1-10-------	1,376	76	5	3.40	752	8.8	6.7	.21	1.3	46	18	34		0	296	10	.2	.9	445	250	250	86
Sept. 11-20------	2,176	75	1	3.45	751	--	--	.26	--	--	--	--		0	281	10	--	1.0	--	--	--	86
Sept. 21-24------	8,145	70	2	3.40	737	--	--	.17	--	--	--	--		0	269	8	--	1.0	--	--	--	89
Sept. 25, 27-30---	4,975	69	2	3.80	437	--	--	.05	--	--	--	--		0	162	8	--	1.0	--	--	--	40
Average------	9,918	57	2	--	402	--	--	0.08	--	--	--	--		0	149	5.9	--	1.8	--	--	--	--

PVP712, 1/9 I no. 241

APRIL 1952

OMMERCE

APHS

MONONGAHELA RIVER AT CHARLEROI, PA.

Chemical analyses, in parts per million, water year October 1948 to September 1949

Date of collection	Mean discharge (second feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Non carbonate	Total acidity as H_2SO_4
Oct. 1-10, 1948---	2,546	64	12	3.75	417	5.6	2.2	.09	.62	25	8.5	19		0	145	5.0	.1	3.8	226	120	120	28
Oct. 11-20-------	2,846	58	1	3.80	386	---	---	.12	---	---	---	---		0	139	6	---	1.6	---	---	---	46
Oct. 21-31-------	2,721	53	1	3.85	455	---	---	.08	---	---	---	---		0	173	9	---	2.0	---	---	---	54
Nov. 1-10--------	3,493	54	6	3.55	591	---	---	.28	---	---	---	---		0	213	6	---	---	---	---	---	94
Nov. 11-20-------	4,886	51	5	3.75	442	5.4	1.4	.04	.73	31	12	13		0	154	7	.0	3.2	249	145	145	49
Nov. 21-30-------	10,250	49	5	4.2	294	---	---	.04	---	---	---	---		0	96	5.0	.0	3.0	---	---	---	25
Dec. 1-10--------	18,020	44	5	4.6	178	---	---	.00	---	---	---	---		2	66	4	.1	2.6	---	---	---	---
Dec. 11, 13-20----	37,040	44	5	4.5	192	---	---	.04	---	---	---	---		0	63	2.8	.0	3.5	---	---	---	19
Dec. 12----------	6,900	43	5	6.5	282	---	---	.02	---	---	---	---		6	77	3	.0	.4	---	---	---	---
Dec. 21-31-------	16,300	---	5	4.0	260	---	---	.02	---	---	---	---		0	94	4.0	.0	3.6	---	---	---	35
Jan. 1-4, 8-10,1949	18,100	37	5	4.1	256	---	---	.02	---	---	---	---		0	94	4.0	.1	2.8	---	---	---	33
Jan. 5----------	11,900	38	10	3.6	510	---	---	.04	---	---	---	---		0	195	6	---	3.0	---	---	---	127
Jan. 11-20-------	11,150	40	12	4.15	264	5.8	1.2	.06	.35	20	6.9	6.6		0	91	4	.2	2.6	153	89	89	50
Jan. 21-24-------	17,640	42	10	4.1	285	---	---	.02	---	---	---	---		0	107	4	.1	3.0	---	---	---	35
Jan. 25-31-------	48,200	45	10	4.4	199	---	---	.00	---	---	---	---		0	76	6	.0	3.8	---	---	---	10
Feb. 1-10--------	20,950	42	10	4.1	242	---	---	.00	---	---	---	---		0	90	4	.0	2.2	---	---	---	22
Feb. 11-16, 20----	16,350	41	5	3.9	307	---	---	.02	---	---	---	---		0	113	3	.0	2.5	---	---	---	29
Feb. 17, 18------	29,700	46	10	4.6	184	---	---	.00	---	---	---	---		1	64	2	.1	2.3	---	---	---	---
Feb. 19----------	22,800	46	---	3.9	520	---	---	.07	---	---	---	---		0	114	98	.1	2.3	---	---	---	44
Feb. 21-28-------	21,050	45	10	4.3	198	---	---	.00	---	---	---	---		0	80	3	.0	2.2	---	---	---	11
Mar. 1-10--------	12,180	42	5	4.1	292	---	---	.00	---	---	---	---		0	113	3	.0	1.9	---	---	---	24
Mar. 11-20-------	14,030	38	15	4.3	264	---	---	.00	---	---	---	---		0	109	1	.0	2.0	---	---	---	20
Mar. 21-31-------	12,160	45	15	3.90	274	---	---	.02	---	---	---	---		0	109	4	.2	2.2	---	---	---	24
Apr. 1-10--------	11,530	51	5	4.30	289	6.2	1.0	.02	.58	23	8.0	9.9		0	111	2.3	.2	1.4	173	99	99	21
Apr. 11-20-------	12,070	52	20	4.40	263	---	---	.02	---	---	---	---		0	106	6	.0	1.8	---	---	---	16
Apr. 21-30-------	6,686	55	10	4.20	335	---	---	.02	---	---	---	---		0	138	4	.1	1.4	---	---	---	25
May 1-10---------	2,854	62	10	4.15	421	---	---	.02	---	---	---	---		0	176	8	.1	1.3	---	---	---	33
May 11-20--------	2,120	66	20	3.90	524	---	---	.04	---	---	---	---		0	204	2	.2	1.1	---	---	---	40
May 21-31--------	8,221	66	10	4.00	456	---	---	.15	---	---	---	---		0	191	6	.2	1.0	---	---	---	34
June 1-10--------	1,974	68	3	4.5	394	---	---	---	---	---	---	---		0	161	5.8	.2	.8	---	---	---	16
June 11-20-------	2,580	74	10	3.9	515	---	---	.08	---	---	---	---		0	203	8	---	1.4	---	---	---	31
June 21-30-------	2,736	77	3	3.7	409	---	---	.10	---	---	---	---		0	152	7	---	.4	---	---	---	32
July 1-10--------	1,966	81	1	3.80	504	---	---	.22	---	---	---	---		0	197	7	---	.7	---	---	---	41
July 11-15, 19----	6,067	80	1	3.75	567	---	---	.11	---	---	---	---		0	215	8	---	.3	---	---	---	50
July 16-18, 20----	6,630	78	1	3.70	312	---	---	.10	---	---	---	---		0	117	5	---	.5	---	---	---	22
July 21-25, 30, 31	5,936	80	1	4.00	369	---	---	.03	---	---	---	---		0	146	8	.2	.9	---	---	---	24
July 26-29-------	3,942	80	2	4.30	220	---	---	.02	---	---	---	---		0	83	2	.1	.9	---	---	---	11
Aug. 1-10--------	1,696	79	5	3.80	427	---	---	.05	---	---	---	---		0	163	10	.1	3.0	---	118	118	53
Aug. 11-20-------	4,649	79	5	3.65	460	---	---	.10	---	---	---	---		0	169	8	.1	3.4	---	128	128	39
Aug. 21-31-------	3,134	76	5	3.95	327	---	---	.05	---	---	---	---		0	126	4	.1	2.8	---	97	97	17
Sept. 1-10-------	1,805	74	2	4.15	369	6.8	1.4	.07	.70	27	8.9	20		0	144	6.2	.1	1.0	226	116	116	19
Sept. 11-20------	992	67	1	3.95	526	---	---	---	---	---	---	---		0	214	10	---	1.3	---	---	---	30
Sept. 21-30------	1,213	71	1	3.85	462	---	---	---	---	---	---	---		0	179	10	---	2.6	---	---	---	24
Average------	9,393	59	7	4.1	359	---	---	.05	---	---	---	---		---	134	7.5	---	2.0	---	---	---	34

YOUGHIOGHENY RIVER AT SUTERSVILLE, PA.

Chemical analyses, in parts per million, water year October 1947 to September 1948

Date of collection	Mean discharge (second feet)	Temperature (°F.)	Color	pH	Specific conductance (micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$		Total acidity as H_2SO_4
																				Total	Non carbonate	
Oct. 1-10, 1947----	357	58	4	3.20	1,040	8.2	5.5	0.78	1.4	58	21	45	3.2	0	381	7.1	0.2	1.2	549	302	302	110
Oct. 11-20----------	321	65	3	3.20	1,060	7.8	4.3	.62	1.4	59	22	49	3.8	0	393	7.5	.3	1.2	563	301	301	103
Oct. 21-31----------	398	58	2	3.30	878	7.0	3.5	.50	1.1	51	19	40	3.2	0	324	7.0	.4	1.2	468	256	258	81
Nov. 1-10-----------	1,011	51	3	3.85	422	4.8	1.3	.06	.62	28	9.4	20	3.5	0	159	4.8	.2	1.0	242	124	124	30
Nov. 11-20----------	1,963	43	3	4.45	221	4.5	.5	.02	.20	16	5.2	11	2.2	0	83	2.9	.1	2.0	133	66	68	9
Nov. 21-30----------	2,324	40	2	4.7	191	4.8	.2	.02	.25	15	4.4	10	2.2	1	89	3.0	.1	2.9	118	57	56	7
Dec. 1-10-----------	1,766	38	3	4.30	284	4.8	.4	.05	.25	19	6.2	14	2.0	0	95	3.5	.1	2.6	156	78	78	11
Dec. 11-20----------	2,233	34	0	4.45	181	4.6	.2	.01	.31	14	4.3	9.8	1.8	0	85	3.4	.1	4.2	110	55	55	8
Dec. 21-31----------	1,077	33	2	3.90	317	5.3	.4	.01	.38	21	6.9	18	1.6	0	117	3.0	.1	2.4	188	90	90	14
Jan. 1-10, 1948----	6,390	36	5	5.2	134	4.5	.1	.04	.17	13	3.8	4.1	1.8	3	45	3.0	.1	5.2	85	47	45	--
Jan. 11-20----------	2,368	--	0	5.0	171	3.8	.4	.02	.22	14	4.8	8.0	2.0	1	62	3.8	--	4.4	105	57	57	8
Jan. 21-31----------	1,365	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Feb. 1-10-----------	902	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Feb. 11-20----------	7,082	--	0	5.5	146	4.7	--	.02	.08	14	4.2	4.3	1.4	4	48	3.0	.1	3.8	91	52	49	--
Feb. 21-29----------	6,141	40	1	5.1	130	4.9	--	.03	.11	11	3.4	4.8	1.1	4	45	2.4	.1	2.6	81	41	38	--
Mar. 1-10-----------	5,459	38	0	5.2	133	4.5	--	.01	.21	12	3.6	4.8	1.0	4	48	2.5	.1	2.0	82	45	41	--
Mar. 11-20----------	3,330	41	0	4.9	188	4.2	.3	.01	.21	16	4.8	8.0	1.1	4	88	3.8	.1	2.0	116	62	58	5
Mar. 21-31----------	4,878	51	0	5.8	161	5.0	--	.04	.18	14	4.5	8.8	1.4	4	57	2.9	.0	3.4	102	53	50	--
Apr. 1-10-----------	3,255	52	5	5.6	195	5.1	--	.03	.31	17	5.8	8.4	1.4	2	73	2.8	.0	2.7	124	65	64	--
Apr. 11-20----------	14,359	52	10	6.0	165	5.7	--	.18	.13	16	4.8	5.4	1.6	6	57	2.2	.0	3.4	106	60	55	--
Apr. 21-30----------	4,153	56	0	4.6	218	5.6	1.0	.04	.38	18	6.1	7.4	1.4	0	83	2.2	.0	2.3	137	78	76	15
May 1-3------------	3,393	66	1	4.50	209	2.0	.5	.02	--	19	6.4	11	2.6	0	84	3	.4	3.4	138	77	77	10
May 4-10-----------	8,834	65	3	6.0	108	4.1	--	.03	.00	10	3.1	4.1	1.2	4	36	2	--	3.1	68	38	34	--
May 11-20----------	3,825	58	1	4.7	170	4.8	.3	.01	.27	15	4.7	7.1	1.1	0	83	1.8	.3	2.5	107	59	59	9
May 21-------------	3,240	59	--	3.35	911	--	--	.55	1.2	48	26	48		0	337	5	--	2.5	--	255	255	114
May 22-31----------	2,260	61	1	4.15	254	5.2	.1	.02	.40	19	6.3	9.4	1.9	0	95	2.0	.2	1.9	151	78	78	20
June 1-10----------	2,159	62	1	4.20	274	4.9	.1	.02	.43	19	6.6	12	1.4	0	103	2.4	.2	1.8	164	79	79	20
June 11-20----------	4,450	63	3	4.7	155	4.6	.4	.03	.28	12	4.0	6.5	1.3	0	56	2.1	.2	1.8	96	49	49	9
June 21-30----------	3,619	68	25	5.4	175	4.4	.2	.02	.1	18	4.2	6.7	1.4	3	64	7.5	.1	3.0	111	63	61	--
July 1-3------------	1,840	69	15	4.3	253	4.8	.5	.05	.2	22	6.8	10		0	99	3.2	.1	3.4	156	88	88	14
July 4-10-----------	5,994	69	10	5.4	127	2.4	.0	.03	.1	14	3.1	7.6	1.7	3	50	4.5	.1	3.5	78	48	45	--
July 11-20----------	3,217	74	5	5.5	180	4.4	--	.03	.10	17	6.5	4.8	1.8	8	65	3.2	.1	3.5	114	69	64	--
July 21,27----------	2,780	72	10	3.50	499	--	--	.26	--	30	21	2.3		0	162	8.0	--	4.1	--	178	178	52
July 22-26, 28-31---	2,527	73	5	5.2	178	4.3	.8	.02	.15	15	5.6	6.8	3.2	6	67	2.5	.1	2.8	113	64	59	--
Aug. 1-10-----------	1,932	70	5	4.8	219	4.1	.6	.03	.23	18	5.5	8.6	2.4	4	83	3.0	.1	3.3	136	71	68	13
Aug. 11-20----------	1,638	71	10	4.6	232	3.7	.6	.03	.25	19	6.0	9.9	2.4	2	87	2.8	.1	3.9	144	78	74	13
Aug. 21-31----------	1,351	75	5	4.2	266	4.1	1.1	.04	.15	19	8.2	12	2.2	0	97	2.8	.1	3.6	159	82	82	18
Sept. 1-10----------	1,241	71	10	4.2	256	5.6	.8	.00	1.1	19	4.9	13	1.0	0	95	1.8	.1	1.4	150	78	78	14
Sept. 11-20---------	1,157	--	15	4.2	280	5.5	.4	.02	1.0	20	5.3	14	1.2	0	94	5.8	.1	1.1	150	79	79	44
Sept. 21-30---------	1,177	63	10	4.10	262	5.2	.4	.02	1.2	21	6.0	11	1.3	0	95	3.8	.1	1.0	150	88	88	63
Average------	3,130	55	5	--	295	4.8	--	0.10	0.4	21	7.4	13	1.9	2	108	3.6	0.1	2.7	159	92	91	--

PWPZX, 17/6, Inc. 24, I

APRIL 1952

OMMERCE

APHS

YOUGHIOGHENY RIVER AT SUTERSVILLE, PA.

Chemical analyses, in parts per million, water year October 1948 to September 1949

Date of collection	Mean discharge (second feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Noncarbonate	Total acidity as H_2SO_4
Oct. 1-10, 1948	1,327	60	10	4.20	256	4.3	.5	.02	1.1	20	4.7	13	1.4	0	92	3.8	.1	1.3	149	77	77	41
Oct. 11-20	1,579	54	--	4.50	211	4.0	.6	.02	.65	17	5.2	10	1.0	--	79	1.8	.1	2.2	129	68	--	
Oct. 21-31	1,207	50	5	4.5	270	--	--	.03	--	--	--	--	--	2	100	2	--	.4	--	--	--	--
Nov. 1-10	1,631	53	5	4.7	213	--	--	.02	--	--	--	--	--	2	76	6	--	.9	--	--	--	--
Nov. 11-20	1,659	47	5	4.8	200	--	--	.04	--	--	--	--	--	2	72	6	--	1.3	--	--	--	--
Nov. 21-30	2,921	45	5	5.3	160	--	--	.06	--	--	--	--	--	4	54	4	--	2.1	--	--	--	--
Dec. 1-10	3,022	41	5	5.4	149	--	--	.01	--	--	--	--	--	3	54	6	--	3.4	--	--	--	--
Dec. 11-20	8,314	42	5	5.5	125	--	--	.01	--	--	--	--	--	2	43	4	--	2.5	--	--	--	--
Dec. 21-31	4,989	37	5	4.9	151	--	--	.02	--	--	--	--	--	1	54	3	--	2.8	--	--	--	--
Jan. 1-10, 1949	5,659	38	5	5.3	137	--	--	.03	--	--	--	--	--	2	42	7	--	3.5	--	--	--	--
Jan. 11-14, 19, 20	3,762	41	5	4.6	142	5.3	.6	.02	.25	12	3.7	2.6		1	46	2	.1	3.5	81	49	48	26
Jan. 15-18	2,440	41	7	4.40	204	5.8	1.1	.04	.35	17	5.2	6.1		0	74	2	.1	3.2	120	72	72	53
Jan. 21-31	11,360	41	5	5.7	121	--	--	.02	--	--	--	--		4	38	2.5	.0	1.8	--	--	--	--
Feb. 1-10	6,385	39	10	4.7	130	--	--	.00	--	--	--	--		1	49	2	.1	3.2	--	--	--	--
Feb. 11-20	4,982	43	5	4.7	130	--	--	.00	--	--	--	--		0	51	2	.1	3.2	--	--	--	--
Feb. 21-28	6,560	43	5	5.6	124	--	--	.00	--	--	--	--		4	46	2	.1	2.8	--	--	--	--
Mar. 1-10	5,176	39	10	5.0	132	--	--	.00	--	--	--	--		6	56	1	.1	2.7	--	--	--	--
Mar. 11-20	3,685	37	10	5.0	187	--	--	.00	--	--	--	--		3	85	3	.1	2.7	--	--	--	--
Mar. 21-31	3,202	50	10	4.50	180	--	--	.02	--	--	--	--		0	88	4	.1	2.5	--	--	--	--
Apr. 1-10	4,246	47	5	5.2	164	6.0	--	.00	.20	13	4.3	6.6		2	56	2.4	.1	1.2	94	50	48	--
Apr. 11-20	2,494	51	5	4.9	188	--	--	.00	--	--	--	--		1	69	4	--	1.2	--	--	--	--
Apr. 21-30	2,524	54	10	5.4	184	--	--	.00	--	--	--	--		3	68	2	--	1.7	--	--	--	--
May 1-10	1,525	64	5	4.2	246	--	--	--	--	--	--	--		0	96	2.6	.1	1.4	--	--	--	14
May 11-20	1,288	61	3	3.9	296	--	--	--	--	--	--	--		0	110	2.6	.1	.6	--	--	--	18
May 21-31	2,212	57	3	4.3	218	--	--	--	--	--	--	--		0	83	2.2	.1	1.4	--	--	--	12
June 1-10	1,127	64	3	4.0	274	--	--	--	--	--	--	--		0	105	2.9	.1	.8	--	--	--	16
June 11, 13-20	1,241	70	1	3.95	285	--	--	.04	--	--	--	--		0	101	2	--	.7	--	--	--	16
June 12	1,120	68	1	4.6	149	--	--	--	--	--	--	--		0	51	1	--	2.2	--	--	--	4
June 21-30	1,339	73	5	4.20	253	--	--	.03	--	--	--	--		0	91	2	--	1.5	--	--	--	10
July 1-10	1,034	75	1	4.05	280	--	--	.04	--	--	--	--		0	108	2	--	1.1	--	--	--	13
July 11-20	1,469	71	4	4.15	252	--	--	.04	--	--	--	--		0	91	3	--	1.4	--	--	--	11
July 21-31	1,624	75	2	4.30	231	--	--	.02	--	--	--	--		0	64	2	.1	2.0	--	--	--	10
Aug. 1-10	1,597	72	4	4.35	217	--	--	--	--	--	--	--		0	87	4	--	1.5	--	--	--	10
Aug. 11-20	2,734	70	2	4.8	205	--	--	--	--	--	--	--		2	78	2	--	1.8	--	--	--	--
Aug. 21-31	1,796	58	1	4.40	218	--	--	--	--	--	--	--		0	85	2	--	1.5	--	--	--	10
Sept. 1-10	1,589	66	4	4.5	213	5.7	.3	.10	.4	17	5.6	9.5		0	80	2.5	.1	1.4	127	68	68	9
Sept. 11-20	1,219	65	5	4.1	227	--	--	--	--	--	--	--		0	83	2	--	1.0	--	--	--	8
Sept. 21-30	1,291	51	3	4.0	238	--	--	--	--	--	--	--		0	84	2	--	.8	--	63	63	9
Average	3,029	55	5	4.55	199	--	--	--	--	--	--	--		--	73	2.9	--	1.9	--	--	--	--

Beaver River at New Brighton, Pa.

Chemical analyses, in parts per million, water year October 1946 to September 1947

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Kx10⁶ at 25°C.) 1/	Silica (SiO_2)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium and potassium (Na+K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$	
																		Total	Non-carbonate
Oct. 1-10, 1946	692	66	5	6.7	51.5	3.2	0.01	0.00	56	10	39	40	171	32	0.5	9.8	341	181	148
Oct. 11-20	1,268	66	3	6.7	51.3	3.8	.01	.11	55	11	27	44	144	34	.5	8.7	333	182	146
Oct. 21-31	1,250	60	2	6.7	48.5	5.6	.01	.00	52	11	24	47	130	33	.4	6.2	316	175	136
Nov. 1-10	789	60	3	6.4	53.2	6.2	.02	.00	54	11	25	37	156	23	.8	10	342	180	150
Nov. 11-20	925	53	4	6.6	55.8	3.4	.01	.00	60	12	26	42	158	33	.6	11	355	199	165
Nov. 21-30	1,180	47	3	6.6	57.0	5.0	.02	.00	60	12	32	42	162	39	.6	10	362	199	165
Dec. 1-10	871	42	3	6.7	47.1	5.0	.03	.00	48	11	26	54	119	32	.4	8.0	291	165	121
Dec. 11-20	2,843	44	5	6.7	40.1	5.2	.07	.00	42	9.6	19	42	104	26	.4	7.6	246	144	110
Dec. 21-31	2,336	39	4	6.4	42.7	6.0	.04	.03	43	9.6	22	26	121	28	.4	8.5	268	147	125
Jan. 1-10, 1947	5,760	38	7	6.2	28.0	5.6	.05	.00	29	6.9	11	27	73	15	.2	6.1	171	101	79
Jan. 11-20	6,179	39	8	6.2	31.0	6.2	.16	.06	34	7.5	12	30	84	17	.3	7.0	182	116	91
Jan. 21-31	9,505	41	12	6.3	25.9	5.2	.34	.06	30	6.6	8.5	36	68	11	.3	4.8	161	102	72
Feb. 1-10	6,563	36	9	6.4	29.7	5.2	.08	.00	33	8.1	10	41	79	12	.2	6.3	183	116	82
Feb. 11-20	3,040	38	8	6.8	34.1	5.4	.02	.03	38	8.3	12	34	92	16	.2	9.4	213	129	101
Feb. 21-28	1,871	38	8	6.8	39.0	6.4	.02	.06	41	9.0	15	26	110	20	.4	9.4	243	139	118
Mar. 1-10	1,740	41	7	6.6	43.2	6.2	.02	.05	45	9.8	19	28	120	26	.4	11	270	153	130
Mar. 11-20	4,613	40	10	6.4	29.3	5.4	.06	.07	31	7.3	11	25	78	16	.3	9.0	187	107	87
Mar. 21-31	6,978	42	9	6.5	26.8	5.4	.05	.02	30	6.7	8.8	29	71	13	.2	6.2	168	102	79
Apr. 1-10	11,160	48	12	6.7	21.4	5.2	.07	.07	25	5.8	5.9	34	54	8.1	.3	3.4	136	86	58
Apr. 11-20	5,703	54	14	6.6	26.2	4.6	.07	.00	30	6.6	8.4	34	70	11	.3	4.1	170	102	74
Apr. 21-30	10,080	52	20	6.7	23.6	5.4	.08	.00	28	6.1	6.8	37	61	8.8	.2	3.7	153	95	65
May 1-10	7,777	57	8	6.9	24.9	4.8	.04	.03	29	6.5	6.7	36	64	10	.2	3.7	151	99	70
May 11-20	6,872	60	6	6.8	26.2	5.0	.05	.03	30	6.8	10	42	69	11	.2	3.5	164	103	68
May 21-31	11,810	65	8	6.7	22.6	6.2	.06	.00	28	6.2	5.6	44	55	7.6	.2	3.7	139	95	59
June 1-10	15,970	65	18	6.9	21.0	4.4	.14	.00	27	5.8	6.0	48	51	6.4	.2	2.7	137	91	52
June 11-20	7,715	70	16	6.9	24.0	5.0	.15	.00	29	6.3	7.2	45	59	8.0	.3	4.5	154	98	61
June 21-30	2,740	75	8	6.7	31.1	4.2	.03	.00	36	7.5	11	42	83	12	.5	6.9	192	121	86
July 1-10	1,662	77	8	6.8	38.3	4.0	.01	.00	43	8.9	15	52	100	16	.5	6.9	238	144	101
July 11-20	2,143	76	2	6.9	37.4	3.6	.03	.00	42	8.8	13	50	94	18	.4	6.2	233	141	100
July 21-31	1,554	76	4	6.7	38.8	4.2	.04	.00	43	8.7	15	40	105	19	.4	8.2	248	143	110
Aug. 1-10	1,369	81	4	6.8	39.4	3.2	.04	.00	43	8.2	17	38	106	21	.5	6.2	251	141	110
Aug. 11-20	1,377	85	7	6.5	38.7	4.0	.02	.05	44	8.0	17	32	114	18	.7	9.8	261	143	116
Aug. 21-31	2,702	83	8	6.7	39.8	5.2	.02	.00	45	8.2	17	40	107	22	.4	9.4	266	146	113
Sept. 1-10	2,527	77	10	6.6	32.2	6.6	.04	.00	37	6.9	12	39	83	16	.4	7.2	215	121	89
Sept. 11-20	1,291	78	8	6.7	39.8	4.4	.04	.07	46	8.5	18	33	117	21	.6	9.8	268	150	123
Sept. 21-30	1,201	69	7	6.5	44.0	5.4	.02	.00	48	9.7	19	30	126	24	.6	13	289	160	135
Average	4,309	58	8	6.6	36.2	5.0	0.05	0.02	40	8.4	14	38	99	19	0.4	7.3	230	134	103

1/ To convert to micromhoe at 25°, multiply by 10.

PKPL 2.1, 2/3 Inc.
APRIL 1952
OMMERCE
APHS

BEAVER RIVER AT NEW BRIGHTON, PA.

Chemical analyees, in parts per million, water year October 1947 to September 1948

35618

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (micromhos at 25°C.)	Silica (SiO_2)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Noncarbonate
Oct. 1-10, 1947----	833	66	5	6.3	473	4.4	0.02	0.4	52	10	21		20	143	26	0.8	16	313	171	154
Oct. 11-20----------	754	69	12	6.2	527	--	--	--	--	--	--		22	174	28	--	--	--	--	--
Oct. 21-31----------	820	66	13	6.3	513	--	--	--	--	--	--		20	163	27	--	--	--	--	--
Nov. 1-10----------	1,040	59	12	6.5	543	--	--	--	--	--	--		33	159	36	--	--	--	--	--
Nov. 11-20----------	1,145	49	11	6.5	510	--	--	--	--	--	--		36	137	36	--	--	--	--	--
Nov. 21-30----------	1,183	46	14	6.4	505	--	--	--	--	--	--		25	145	34	--	--	--	--	--
Dec. 1-10----------	1,620	42	14	6.3	484	--	--	--	--	--	--		23	139	32	--	--	--	--	--
Dec. 11-20----------	1,981	40	26	6.3	398	--	--	--	--	--	--		26	109	24	--	--	--	--	--
Dec. 21-31----------	935	38	13	6.2	472	--	--	--	--	--	--		15	138	30	--	21	--	--	--
Jan. 1-10, 1948----	3,414	36	15	6.4	387	6.5	.14	.24	41	9.1	19		28	106	23	.3	17	246	140	117
Jan. 11-18,20------	1,308	34	--	--	--	--	--	--	--	--	--		--	--	--	--	--	--	--	--
Jan. 19----------	796	--	12	6.5	486	--	--	--	--	--	--		62	134	30	--	--	--	--	--
Jan. 21-31----------	740	36	7	6.3	584	--	--	--	--	--	--		24	183	36	--	23	--	--	--
Feb. 1-10----------	644	37	25	7.0	665	--	.26	--	--	--	--		56	203	36	--	31	--	--	--
Feb. 11-14----------	5,155	--	10	6.4	644	--	--	--	--	--	--		20	200	38	--	33	--	--	--
Feb. 15-20----------	12,950	--	15	6.5	210	--	--	--	--	--	--		21	51	9	--	7.8	--	--	--
Feb. 21-29----------	4,624	41	15	6.5	281	--	--	--	--	--	--		19	78	14	--	8.2	--	--	--
Mar. 1-10----------	3,707	43	26	6.7	312	--	--	--	--	--	--		24	85	16	--	11	--	--	--
Mar. 11-20----------	4,749	45	32	6.3	367	--	--	--	--	--	--		29	103	19	--	12	--	--	--
Mar. 21-31----------	7,487	54	65	6.4	240	--	--	--	--	--	--		31	62	10	--	5.6	--	--	--
Apr. 1-10----------	3,604	55	3	6.5	287	4.0	.08	.00	31	7.1	10		29	75	15	.3	6.4	191	107	83
Apr. 11-20----------	13,256	53	12	6.6	256	--	--	--	--	--	--		33	68	11	--	5.6	--	--	--
Apr. 21-30----------	6,048	60	11	6.7	307	--	--	--	--	--	--		40	82	14	--	5.8	--	--	--
May 1-10----------	10,976	59	17	6.7	240	--	--	--	--	--	--		40	61	9.0	--	2.8	--	--	--
May 11-20----------	5,568	64	15	6.6	278	--	--	--	--	--	--		40	72	11	--	5.8	--	--	--
May 21-31----------	1,976	68	10	6.6	354	--	--	--	--	--	--		44	95	17	--	6.6	--	--	--
June 1-10----------	1,372	73	5	6.6	463	--	--	--	--	--	--		38	135	24	--	10	--	--	--
June 11-20----------	2,124	74	10	6.7	407	--	--	--	--	--	--		43	110	22	--	8.4	--	--	--
June 21-30----------	2,395	79	10	6.5	364	--	--	--	--	--	--		40	97	20	--	8.2	--	--	--
July 1-10----------	1,687	79	10	6.6	373	--	--	--	--	--	--		46	97	18	--	9.0	--	--	--
July 11-20----------	1,449	82	12	6.5	409	--	--	--	--	--	--		50	106	22	--	9.0	--	--	--
July 21-31----------	2,380	79	15	6.5	361	--	--	--	--	--	--		40	96	19	--	7.4	--	--	--
Aug. 1-10----------	1,416	78	12	6.5	410	--	--	--	--	--	--		38	116	22	--	8.8	--	--	--
Aug. 11-20----------	3,719	74	10	6.4	337	--	--	--	--	--	--		33	89	19	--	8.0	--	--	--
Aug. 21-31----------	1,379	82	10	6.5	403	--	--	--	--	--	--		36	115	22	--	8.2	--	--	--
Sept. 1-10----------	1,047	78	17	6.7	436	4.8	.04	.51	49	10	18		34	130	21	.6	11	281	163	136
Sept. 11-20----------	954	76	5	6.6	479	--	--	--	--	--	--		39	139	26	--	12	--	--	--
Sept. 21-30----------	953	70	7	6.6	489	--	--	--	--	--	--		36	141	28	--	11	--	--	--
Average-------	3,110	58	14	--	412	--	--	--	--	--	--		33	117	23	--	--	--	--	--

BEAVER RIVER AT NEW BRIGHTON, PA.

Chemical analyses, in parts per million, water year October 1948 to September 1949

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$	
																			Total	Noncarbonate
Oct. 1-10, 1948	936	67	15	6.8	517	4.0	.05	.25	58	11	25		36	156	28	.7	13	338	190	160
Oct. 11-20	1,526	60	7	6.7	503	—	—	—	—	—	—		41	143	30	—	12	—	—	—
Oct. 21-31	1,038	57	12	6.7	452	—	—	—	—	—	—		36	129	24	—	12	—	—	—
Nov. 1-10	1,215	59	15	6.5	506	—	—	—	—	—	—		44	147	—	—	—	—	—	—
Nov. 11-20	1,292	52	15	6.6	484	6.0	.02	.0	52	11	25		50	136	31	.0	3.8	306	175	134
Nov. 21-30	3,195	50	15	6.5	404	—	—	—	—	—	—		41	102	23	—	7.4	—	—	—
Dec. 1-10	2,311	46	15	6.7	378	—	—	—	—	—	—		32	99	24	—	6.8	—	—	—
Dec. 11-20	7,678	44	50	6.3	333	—	—	—	—	—	—		33	94	20	—	3.1	—	—	—
Dec. 21-31	3,123	40	15	6.6	339	—	—	—	—	—	—		28	91	18	—	8.1	—	—	—
Jan. 1-10, 1949	6,921	40	10	6.7	280	—	—	—	—	—	—		28	73	12	—	7.4	—	—	—
Jan. 11-20	3,144	46	10	6.8	339	7.5	.06	.0	38	8.5	13		28	99	18	.1	8.2	215	129	107
Jan. 21-31	12,030	43	15	6.9	280	—	—	—	—	—	—		29	73	12	—	6.8	—	—	—
Feb. 1-10	5,103	39	15	6.8	321	—	—	—	—	—	—		35	95	14	—	1.6	—	—	—
Feb. 11-20	6,540	41	30	7.0	281	—	—	—	—	—	—		33	82	12	—	4.0	—	—	—
Feb. 21-28	8,289	43	15	7.1	259	—	—	—	—	—	—		31	90	12	—	3.5	—	—	—
Mar. 1-10	4,632	42	15	7.0	300	—	—	—	—	—	—		33	88	14	—	4.0	—	—	—
Mar. 11-20	3,880	41	15	7.0	310	—	—	—	—	—	—		30	95	15	—	3.0	—	—	—
Mar. 21-31	5,214	51	15	6.4	293	—	—	—	—	—	—		30	89	14	—	4.0	—	—	—
Apr. 1-10	5,896	50	15	7.1	277	6.8	.08	.0	31	7.6	9.0		33	77	14	.3	3.1	175	109	82
Apr. 11-20	2,928	57	15	6.6	338	—	—	—	—	—	—		42	105	16	—	3.8	—	—	—
Apr. 21-30	4,278	58	15	6.7	321	—	—	—	—	—	—		43	100	16	—	3.4	—	—	—
May 1-10	1,883	69	15	6.7	359	—	—	—	—	—	—		42	105	19	—	3.6	—	—	—
May 11-20	1,164	70	15	6.8	494	—	—	—	—	—	—		47	150	26	—	4.2	—	—	—
May 21-31		65	10	6.9	315	—	—	—	—	—	—		43	80	12	—	3.8	—	—	—
June 1-10	1,104	73	7	6.8	442	—	—	—	—	—	—		40	137	22	.6	8.0	—	—	—
June 11-20	1,084	79	20	6.8	488	—	.0	—	—	—	—		39	150	25	.8	5.4	—	—	—
June 21-30	1,211	82	25	7.0	436	—	.0	—	—	—	—		43	130	22	.6	5.6	—	—	—
July 1-10	1,200	84	15	7.1	436	—	.0	—	—	—	—		49	122	23	.7	6.3	—	—	—
July 11-20	1,295	82	5	7.2	413	—	—	—	—	—	—		48	117	20	.6	5.2	—	—	—
July 21-31	1,703	83	7	6.9	416	—	.04	—	—	—	—		46	123	19	.4	8.2	—	—	—
Aug. 1-10	1,299	81	10	6.9	405	—	—	—	—	—	—		45	115	21	.4	4.7	—	156	119
Aug. 11-20	967	82	10	6.9	452	—	—	—	—	—	—		42	135	22	.8	4.6	—	169	135
Aug. 21-31	887	79	5	6.6	470	—	—	—	—	—	—		32	156	23	.8	3.9	—	—	—
Sept. 1-10	999	75	30	6.8	453	5.4	.14	.0	51	11	11	11	44	131	24	.0	4.2	289	172	136
Sept. 11-20	778	72	5	6.8	499	—	—	—	—	—	—		50	153	22	.6	4.4	—	—	—
Sept. 21-30	780	65	10	6.6	515	—	—	—	—	—	—		40	170	24	.7	5.6	—	—	—
Average	3,080	60	15	6.8	392	—	—	—	—	—	—		38	115	20	—	5.6	—	—	—

MISCELLANEOUS ANALYSES

Chemical analyses, in parts per million

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chlorids (Cl)	Fluoride (F)	Nitrats (NO_3)	Dissolved solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Non-carbonats	Total acidity as H_2SO_4
DELAWARE RIVER NEAR ATCO (at Narrowsburg, N. Y.)																						
July 28, 1949	358	80	10	6.9	62.2	1.6	---	.06	---	6.8	2.0	3.3	---	22	9.5	1.5	.0	.6	47	25	7	---
Aug. 16, "	401	68	15	7.2	73.5	1.6	---	.08	---	7.6	2.1	4.4	---	24	11	3.5	.0	.7	43	28	8	---
Sept. 20, "	293	65	11	6.9	70.6	1.1	---	.07	---	7.2	2.0	3.1	---	23	10	2.5	.0	.2	41	26	7	---
DELAWARE RIVER AT EASTON																						
July 28, 1949	2,070	83	25	7.3	138	2.0	---	.09	---	15	4.4	4.9	---	51	19	3.0	.2	1.3	101	56	14	---
Aug. 16, "	906	78	30	7.6	149	2.2	---	.40	---	16	4.8	4.9	---	44	29	4.0	.0	2.1	119	60	24	---
Sept. 20, "	858	68	8	7.8	140	1.8	---	.08	---	16	5.1	4.5	---	52	21	3.0	.0	1.0	82	61	18	---
DELAWARE RIVER AT MORRISVILLE																						
July 28, 1949	3,470	83	10	7.7	186	3.0	---	.06	---	19	6.7	6.6	---	63	26	7.5	.0	2.1	114	75	23	---
Aug. 16, "	2,570	79	15	7.9	207	3.6	---	.12	---	21	6.9	7.2	---	61	32	8.5	.0	3.0	129	80	30	---
Sept. 20, "	2,700	70	16	7.9	197	1.0	---	.07	---	21	7.2	8.4	---	60	33	8.0	.0	1.9	126	82	33	---
LACKAWAXEN RIVER AT HAWLEY																						
July 28, 1949	66.4	80	15	7.2	89.2	1.6	---	.04	---	11	3.2	2.8	---	32	17	2.5	.0	.6	54	41	14	---
Aug. 16, "	55.0	71	25	7.5	94.6	1.6	---	.10	---	12	1.7	5.2	---	34	12	3.2	.0	.9	58	37	9	---
Sept. 20, "	62.6	62	19	7.4	90.9	.7	---	.08	---	12	1.6	3.6	---	33	12	4.0	.0	.4	53	37	10	---
LACKAWAXEN RIVER AT KIMBLES																						
Nov. 13, 1947	726	42	16	6.5	72.6	3.1	---	.04	---	8.1	1.1	3.1		12	15	3.0	.1	1.8	49	25	15	---
Dec. 10, "	1,740	32	6	6.5	50.8	.4	---	.01	---	5.8	.9	2.7		12	9.9	1.5	.0	1.7	32	18	8	---
Jan. 7, 1948	1,660	32	8	6.8	50.7	.2	---	.01	---	6.0	.9	2.4		14	10	1.2	.0	.4	33	19	7	---
Feb. 4, "	1,540	32	3	5.8	49.7	.3	---	.05	---	5.8	.9	2.0		12	9.3	.9	.2	1.4	30	18	8	---
Mar. 31, "	640	46	6	6.5	59.6	2.8	---	.03	---	6.7	1.0	2.5		12	12	1.6	.1	1.8	38	21	11	---
Apr. 28, "	1,870	52	5	6.9	61.1	1.6	---	.02	---	7.1	1.2	3.3		16	12	2.5	.0	.8	40	23	10	---
May 26, "	2,190	---	10	6.2	59.3	3.1	---	.02	---	7.4	1.0	2.4		16	11	1.2	.1	1.7	42	23	9	---
June 23, "	425	61	6	6.3	51.8	3.4	---	.02	---	6.4	1.0	1.6		12	10	1.2	.1	1.6	36	20	10	---
July 21, "	1,460	70	3	7.0	53.2	2.0	---	.07	---	6.7	1.3	2.4		15	11	1.5	.0	1.7	36	22	10	---
Aug. 18, "	1,580	60	6	6.5	70.0	2.0	---	.18	---	8.3	1.5	3.3		22	11	2.3	.0	1.7	46	27	9	---
Sept. 16, "	1,300	---	6	6.4	53.8	1.3	---	.05	---	6.6	1.4	2.4		17	9.9	1.5	.1	.9	37	22	8	---
Oct. 15, "	43	60	5	6.6	69.0	1.8	---	.01	---	8.5	1.4	3.7		23	11	2.2	.2	1.2	44	27	8	---
Nov. 17, "	1,430	---	6	7.1	57.3	1.4	---	.02	---	6.8	.9	4.0		17	11	2.1	.1	.9	42	21	7	---
Dec. 22, "	226	---	6	6.7	82.1	2.5	---	.02	---	9.8	1.2	4.8		21	17	2.9	.1	.8	56	29	12	---
Jan. 26, 1949	2,070	32	12	6.8	62.7	3.8	---	.04	---	7.7	1.3	3.2		13	16	2.0	.0	1.6	45	25	14	---
Apr. 5, "	258	41	7	6.6	71.0	3.0	---	.02	---	7.8	1.4	4.3		18	14	2.4	.2	1.6	50	25	10	---
May 11, "	1,900	58	10	6.7	65.7	2.2	---	.02	---	7.9	.9	4.2		19	12	2.0	.1	1.8	44	23	8	---
June 15, "	1,590	74	12	6.1	74.4	2.1	---	.02	---	8.4	1.4	4.0		19	13	2.5	.1	3.0	46	27	11	---

RAPHS
OMMERCE
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PYP712, 17/9
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MISCELLANEOUS ANALYSES OF STREAMS IN DELAWARE RIVER BASIN--Continued

Chemical analyses, in parts per million

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$		Total acidity as H_2SO_4
																				Total	Noncarbonate	
LACKAWAXEN RIVER AT ROWLAND																						
July 28, 1949	132	72	10	6.8	51.7	1.2	--	.08	--	6.8	1.3	.4	--	12	12	1.0	.1	.7	36	22	12	--
Aug. 16,	129	68	15	7.1	57.1	1.0	--	.20	--	6.8	1.4	1.9	--	18	10	1.0	.0	.6	37	23	8	--
Sept. 20,	118	61	10	7.0	52.2	1.2	--	.06	--	6.0	1.1	1.4	--	14	9.9	1.5	.0	.5	33	19	8	--
SHOHOLA CREEK AT SHOHOLA																						
July 28, 1949	14.8	78	25	6.8	40.5	2.8	--	.02	--	3.2	1.4	2.8	--	13	9.1	2.0	.0	.9	38	14	3	--
Aug. 16,	14.1	68	20	7.0	44.5	2.8	--	.05	--	3.4	1.4	4.4	--	15	6.3	1.5	.0	.8	33	14	2	--
Sept. 20,	11.9	60	20	6.9	42.5	2.5	--	.03	--	3.6	1.4	4.0	--	16	6.8	1.5	.0	.3	29	15	2	--
RAYMOND KILL AT RAYMOND KILL																						
Nov. 3, 1948	--	--	--	7.3	48.8	5.2	--	--	--	--	--			17	6.9	2.0	--	.4	--	18	4	--
BUSHKILL CREEK AT SHOEMAKERS																						
July 28, 1949	28.2	83	25	6.9	37.2	3.6	--	.02	--	4.4	1.0	1.9	--	13	5.7	1.0	.1	.7	34	15	4	--
Aug. 16,	18.7	74	15	7.1	41.4	2.6	--	.06	--	4.4	.9	2.3	--	13	6.5	1.5	.0	.9	30	15	4	--
Sept. 20,	14.5	64	10	6.9	39.8	2.3	--	.02	--	3.4	1.3	1.7	--	11	6.9	1.5	.0	.4	26	14	5	--
BRODHEAD CREEK NEAR STROUDSBURG																						
July 28, 1949	100	82	10	7.0	89.8	4.2	--	.11	--	11	1.8	4.3	--	26	19	2.5	.0	1.6	63	35	14	--
Aug. 16,	71	74	10	7.2	101	4.0	--	.13	--	12	1.7	5.1	--	30	23	3.0	.0	1.7	--	37	12	--
Sept. 20,	93	67	24	6.5	98.6	4.2	--	.18	--	12	1.8	4.1	--	18	25	3.0	.0	1.3	64	37	23	--
POCONO CREEK AT STROUDSBURG																						
Nov. 3, 1948	--		--	7.4	57.4	--	--	--	--	--	--	--		17	9.1	1.8	--	1.1	--	19	5	--
MARSHALLS CREEK AT MARSHALLS CREEK																						
Nov. 3, 1948	--	50	--	6.8	68.6	4.8	--	--	--	--	--	--		23	16	4	--	.4	--	22	3	--
CHERRY CREEK AT DELAWARE WATER GAP																						
Nov. 3, 1948	--		--	8.0	221	3.6	--	--	--	--	--	--		109	20	1.8	--	.9	--	95	6	--
MARTINS CREEK AT MARTINS CREEK																						
Feb. 27, 1948	--	7	--	6.8	176	--	--	--	--	--	--	--		30	54	4	--	7.3	--	72	47	--

Chemical analyses, in parts per million

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Noncarbonate	Total acidity as H_2SO_4
BUSHKILL CREEK AT TATAMY																						
Nov. 19, 1948	--	52	6	7.1	297	--	--	.05	--	39	11	1.2		81	65	5	--	5.1	--	143	76	--
BUSHKILL CREEK AT EASTON																						
Nov. 19, 1948	--	48	4	7.7	536	--	--	.12	--	51	21	31		166	122	7	--	11	--	214	78	--
LEHIGH RIVER AT TANNERY																						
July 29, 1949	146	81	25	6.5	39.2	1.8	--	.04	--	4.2	.7	1.9	--	10	6.6	2.0	.0	.9	38	14	5	--
Aug. 16,	290	73	25	6.8	37.6	2.2	--	.19	--	4.6	.7	1.5	--	8.0	10	1.5	.0	1.2	28	14	8	--
Sept. 20,	191	67	30	6.5	31.8	1.2	--	.03	--	2.8	.9	2.4	--	7.5	6.0	2.0	.0	.7	25	11	5	--
LEHIGH RIVER AT GLENDON																						
Oct. 9, 1946	959	63	6	7.1	262	--	--	--	--	--	--	--		65	55	8	--	11	--	113	60	--
Nov. 4,	1,390	61	3	7.0	201	--	--	--	--	--	--	--		--	--	--	--	--	--	--	--	--
Dec. 4,	801	39	6	6.8	254	--	--	--	--	--	--	--		--	--	--	--	--	--	--	--	--
Jan. 9, 1947	1,110	38	10	7.2	222	--	--	--	--	--	--	--		--	--	--	--	--	--	--	--	--
Feb. 14,	1,850	36	4	7.4	172	--	--	.28	--	17	6.9	6.1		38	39	6	--	4.7	--	71	40	--
Mar. 19,	4,220	40	8	7.2	118	--	--	.29	--	12	4.8	1.1		22	25	3	--	4.4	--	50	32	--
Apr. 25,	3,020	53	10	7.1	131	--	--	.29	--	14	5.3	2.1		26	29	5	--	3.4	--	57	35	--
May 31,	5,370	63	8	6.8	114	--	--	.14	--	13	4.3	1.7		22	29	2	--	3.6	--	50	32	--
July 5,	1,280	75	8	7.2	216	--	--	.18	--	23	9.4	4.1		56	45	5	--	6.3	--	96	50	--
Aug. 11,	5,200	74	3	7.1	167	--	--	.13	--	16	7.4	3.7		34	39	4	--	5.4	--	70	43	--
Sept. 15,	990	79	3	7.0	254	--	--	--	--	25	11	9.6		66	57	6	--	8.3	--	108	54	--
Oct. 19,	635	71	4	7.1	346	--	--	.08	--	31	13	--		72	75	12	--	12	--	131	72	--
Nov. 25,	3,700	43	5	7.2	167	--	--	.28	--	18	5.3	--		32	38	3	--	6.5	--	67	40	--
Dec. 30,	1,110	36	5	7.4	201	--	--	.06	--	21	9.4	3.4		42	41	11	--	7.3	--	91	57	--
Feb. 2, 1948	803	35	3	6.9	250	--	--	.16	--	23	10	11		61	51	8	--	9.1	--	98	48	--
Feb. 27,	4,210	38	5	6.9	155	--	--	.15	--	16	6.1	3.9		34	33	4	--	6.9	--	65	37	--
Mar. 10,	2,690	42	4	6.9	164	--	--	.12	--	18	6.4	3.0		38	31	6	--	7.3	--	71	40	--
Apr. 15,	11,300	46	4	6.8	108	--	--	.22	--	9.5	4.9	2.6		21	24	3	--	3.8	--	44	27	--
May 21,	4,120	57	2	7.2	140	--	--	.19	--	--	--	--		28	29	3	--	4.8	--	53	30	--
June 29,	3,510	74	4	7.1	138	--	--	.41	--	--	--	--		27	31	4	--	3.9	--	49	30	--
Aug. 5,	1,760	72	3	7.3	263	--	--	.08	--	24	9.8	6.6		57	48	8	--	8.1	--	100	54	--
Sept. 10,	1,090	75	2	6.8	295	--	--	.10	--	27	11	12		69	59	9	--	10.	--	113	56	--
Oct. 15,	616	62	12	6.7	346	--	--	.26	--	31	15	--		85	72	--	--	7.0	--	139	69	--
Nov. 3,	557	58	--	7.5	344	7.2	--	--	--	--		28		93	64	11	--	11	--	106	30	--

PVP 7-12-17/6
Inc. 24-I
APRIL 1952
COMMERCE
GRAPHS

MISCELLANEOUS ANALYSES OF STREAMS IN DELAWARE RIVER BASIN--Continued

Chemicel enalyses, in parts per million

Date of collection	Mean discharge (eecond-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Megnesium (Mg)	Sodium (Ne)	Potaesium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrete (NO_3)	Dissolved solide	Hardness es $CaCO_3$ Total	Hardness es $CaCO_3$ Noncarbonate	Total acidity as H_2SO_4
LEHIGH RIVER AT GLENDON--Continued																						
Nov. 19, 1948	822	53	6	7.1	283	--	--	.08	--	25	13	9.0		58	61	11	--	11	--	116	68	--
Dec. 21,	1,610	39	5	6.5	192	--	--	.10	--	17	6.6	9.1		38	42	6	--	7.5	--	70	38	--
Jen. 25, 1949	3,220	42	5	6.6	160	--	--	.10	--	16	5.6	5.2		32	35	5	--	5.7	--	63	37	--
Mer. 3,	2,790	39	5	6.6	164	--	--	.10	--	16	5.2	6.7		36	34	4	--	6.6	--	61	32	--
Apr. 13,	2,100	55	4	7.1	168	5.7	--	.01	--	16	8.4	--		39	30	6.5	--	7.5	--	74	42	--
Mey 18,	2,140	68	3	7.0	158	6.0	--	.01	--	15	8.3	--		38	26	6.0	--	7.5	--	72	40	--
June 24,	824	82	3	7.2	237	6.5	--	.01	--	22	11	6.2		65	38	9.5	--	9.2	--	100	47	--
July 29,	885	85	5	6.8	261	3.7	--	.12	--	27	11	3.0		63	48	9	--	6.0	--	113	51	--
LEHIGH RIVER AT EASTON																						
July 28, 1949	859	88	20	7.5	276	6.4	--	.18	--	27	7.0	12	--	74	47	10	.0	6.8	178	96	36	--
Aug. 16,	708	78	10	7.5	277	4.8	--	.14	--	28	10	11	--	80	49	7.0	.0	6.6	195	111	45	--
Sept. 20,	906	71	13	7.1	233	5.2	--	.10	--	23	9.2	6.5	--	54	52	6.5	.0	4.7	155	95	51	--
COOKS CREEK NEAR SPRINGTOWN																						
July 9, 1948	--	72	2	7.6	203	13	--	--	--	--	--	--		98	13	3.0	--	5.2	--	95	15	--
Apr. 5, 1949	25	50	8	7.8	171	11	--	.12	--	19	7.6	2.8		62	21	5.0	--	6.3	--	79	28	--
COOKS CREEK NEAR RIEGELSVILLE																						
July 9, 1948	--	70	3	7.8	222	12	--	.04	--	23	11	5.1		105	18	2.9	.0	5.9	131	103	17	--
Apr. 5, 1949	37	50	5	7.8	208	11	--	.08	--	24	11	--		90	23	3.0	--	6.0	--	105	31	--
TINICUM CREEK NEAR OTTSVILLE																						
Apr. 5, 1949	--	50	12	7.2	140	16	--	.24	--	12	8.0	3.7		38	30	5	--	1.8	--	63	32	--
TINICUM CREEK AT TINICUM																						
July 9, 1948	--	72	5	7.4	173	--	--	.07	--	16	7.6	--		60	29	--	--	3.1	--	71	22	--
Apr. 5, 1949	30	49	8	7.4	131	14	--	.10	--	12	7.2	3.2		34	29	5	--	1.8	--	60	32	--
TOHICKON CREEK NEAR QUAKERTOWN																						
July 9, 1948	--	80	21	7.8	283	16	--	.03	--	27	11	13		101	35	12	.1	4.5	182	113	30	--
Apr. 5, 1949	30	50	22	7.2	251	15	--	.15	--	24	12	4.1		56	44	14	--	8.3	--	109	63	--
TOHICKON CREEK AT TOHICKON																						
July 9, 1948	--	81	13	7.0	207	--	--	.05	--	22	8.7	8.9		80	28	8	--	4.9	--	91	25	--
Apr. 5, 1949	63	50	20	7.7	141	13	--	.10	--	14	7.0	3.3		38	28	6	--	2.6	--	64	33	--

Chemical analyses, in parts per million

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Noncarbonate	Total acidity as H_2SO_4
TOHICKON CREEK NEAR PIPERSVILLE																						
Feb. 27, 1948	450	33	30	6.6	123	--	--	.18	--	13	4.4		6.2	26	30	4	--	4.6	--	51	29	--
July 9,	23	82	12	7.7	184	12	--	.03	--	17	7.6		8.3	68	27	4.8	.1	1.0	119	74	18	--
Nov. 5,	2.5	48		7.5	378	2.1	--	--	--	--	--			120	68	16	--	.9	--	110	12	--
Apr. 5, 1949	83	49	15	7.2	142	11	--	.17	--	13	5.8		3.0	35	31	4	.1	1.2	95	56	28	--
July 28,	31.4	83	60	7.1	193	9.4	--	.54	--	14	6.1	5.2		34	32	4.0	.0	2.4	100	60	32	--
Aug. 15,	6.3	76	25	7.2	227	4.6	--	.11	--	24	10	16	--	87	45	12	.0	.7	165	101	30	--
Sept. 20,	10.2	67	27	7.5	223	4.8	--	.08	--	22	8.6	11	--	82	45	8.0	.0	2.4	143	90	39	--
TOHICKON CREEK AT POINT PLEASANT																						
July 9, 1948	--	80	8	7.0	193	--	--	.06	--	18	10		5.0	70	26	8	--	1.5	--	86	29	--
Apr. 5, 1949	90	51	15	7.3	142	9.6	--	.14	--	13	5.9		6.3	34	33	5	.1	1.2	94	57	29	--
INGHAMS SPRING CREEK AT NEW HOPE																						
Apr. 5, 1949	16	52	8	8.0	247	10	--	.30	--	27	15		—	122	21	3	--	7.0	--	129	29	--
PIDCOCK CREEK NEAR NEW HOPE																						
Apr. 5, 1949	--	50	8	7.4	163	15	--	.12	--	14	7.6		7.8	48	29	7	--	4.7	--	66	27	--
SCOTTS CREEK NEAR TULLYTOWN																						
July 12, 1948	--	85	8	6.5	197	--	—	.15	--	18	8.4		6.1	35	44	12	--	1.7	—	79	51	--
MILL CREEK AT BRISTOL (U. S. Highway 13)																						
July 12, 1948	--	79	50	6.7	114	14	--	.56	--	8.4	3.8		6.6	26	13	7.8	.2	5.7	88	37	15	--
Apr. 5, 1949	24	52	18	7.2	116	8.5	--	.24	--	8.7	4.2		6.3	14	27	6	.1	5.4	89	39	28	--
NESHAMINY CREEK NEAR EDISON																						
Aug. 11, 1947	--	76	18	7.4	283	--	--	.10	--	17	8.0	27		72	37	24	--	4.6	--	75	16	--
Nov. 25,	--	44	27	6.6	226	--	--	--	--	--	--			30	47	12	--	11	--	84	59	--
Apr. 15, 1948	--	46	28	6.7	166	--	--	.39	--	14	7.9	1.3		27	37	4	--	5.1	--	67	45	--
July 12,	--	84	5	7.6	197	6.6	--	.04	--	14	5.6	16		50	30	12	.0	5.1	116	58	17	--
Apr. 5, 1949	--	51	5	7.5	181	9.0	--	.20	--	18	8.5		2.6	38	34	9	--	7.7	--	80	49	--
NESHAMINY CREEK NEAR LANGHORNE																						
Nov. 15, 1946	34	45	8	7.8	233	--	--	--	--	--	--		--	79	21	13	--	1.7	--	93	28	--
Dec. 16,	28	35	7	8.0	241	--	--	--	--	--	--		--	73	30	14	--	7.4	--	92	32	--
Jan. 24, 1947	130	35	25	7.2	192	--	--	--	--	--	--		--	34	40	8	--	8.6	--	81	53	--
Feb. 26,	74	33	8	7.3	194	--	--	.08	--	17	7.0	8.4	--	44	30	10	--	9.9	--	71	35	--
May 9,	356	52	12	7.3	166	--	--	.12	--	15	5.8	9.1	--	37	35	7	--	5.6	--	61	31	--

RAPHS

OMMERCE

APRIL 1952

PYP712.17/9
[no. 24]

#24

MISCELLANEOUS ANALYSES OF STREAMS IN DELAWARE RIVER BASIN--Continued

Chemical analyses, in parts per million

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$		Total acidity as H_2SO_4
																				Total	Noncarbonate	
NESHAMINY CREEK NEAR LANGHORNE--Continued																						
June 12, 1947	172	81	10	7.5	172	--	--	.12	--	16	5.9	8.0		44	31	6	--	6.0	--	64	28	--
July 18,	85	77	7	6.9	213	--	--	.10	—	17	7.4	11		60	27	11	--	5.0	--	73	24	--
Aug. 16,	54	81	7	7.3	199	--	--	.10	—	17	6.9	11		56	29	12	--	1.9	--	71	25	--
Sept. 26,	55	56	12	7.0	203	--	--	—	--	--	--	--		59	28	12	--	4.6	--	--	--	--
Oct. 30,	123	59	55	7.0	197	--	--	.30	--	15	6.0	--		50	31	10	--	5.4	--	62	21	--
Dec. 9,	146	38	4	7.3	187	--	--	.04	--	16	8.1	5.9		39	33	9.0	--	8.6	--	73	41	--
Jan. 14, 1948	502	33	8	7.2	165	--	--	.07	--	15	7.3	3.4		28	33	8.0	--	7.6	--	67	44	--
Feb. 19,	2110	38	30	6.1	107	--	--	.31	--	9.6	4.6	2.8		16	23	4	--	7.6	--	43	30	--
Mar. 25,	475	58	3	7.1	175	--	--	.15	--	16	6.6	7.0		34	36	8	--	6.9	--	67	39	--
Apr. 30,	153	58	2	7.6	184	--	--	.14	--	16	6.3	7.5		44	29	8	—	5.6	--	66	30	--
June 4,	211	63	3	7.5	179	--	—	.15	--	17	6.6	6.4		44	29	9	--	5.6	--	70	34	--
July 12,	96	81	4	7.5	183	9.4	--	.03	--	15	5.7	12		48	29	8.5	.1	6.0	112	61	22	--
Aug. 13,	246	77	5	7.1	197	--	--	.12	--	17	7.3	5.5		54	22	9.5	--	4.6	--	72	28	--
Oct. 15,	28	56	9	7.2	232	--	—	.18	--	18	7.7	--		69	44	--	--	1.2	--	77	20	--
Mar. 15, 1949	245	42	4	7.1	177	11	--	.02	--	15	9.6	--		34	35	9.0	--	9.1	--	77	49	--
Apr. 5,	227	--	7	7.3	173	10	--	.15	—	14	6.0	9.7		36	35	7	.0	6.1	111	60	30	--
May 26,	279	62	16	6.6	169	8.0	--	--	--	--	--	--		39	30	6.2	--	5.0	--	--	--	--
June 24,	42	75	16	7.1	202	15	--	.01	--	16	9.6	--		58	28	13	--	6.5	--	79	32	--
July 29,	100	82	35	7.4	141	2.2	--	.15	--	12	5.6	8.0		38	21	9	--	5.8	--	53	22	--
Aug. 19,	29	77	10	7.3	207	7.0	--	.07	—	17	7.0	14		65	30	10	.1	3.2	139	71	18	--
NESHAMINY CREEK AT HULMEVILLE																						
Apr. 4, 1947	--	50	80	6.9	160	--	--	.50	--	15	6.0	5.3		26	37	6	--	6.7	--	62	41	--
July 12, 1948	--	80	5	6.8	197	--	--	.08	--	16	6.6	13		55	27	12	--	6.2	--	67	22	--
Apr. 5, 1949	240	51	6	7.2	167	11	--	.15	--	14	6.4	9.0		34	33	9	--	7.4	--	61	33	--
NESHAMINY CREEK AT CROYDON																						
Apr. 4, 1947	--	47	35	6.9	141	--	--	.29	--	14	4.9	4.9		27	29	6	--	6.2	--	55	33	--
July 12, 1948	--	78	4	7.5	181	8.6	--	.03	--	14	5.8	12		48	27	8.2	.1	6.9	111	59	19	--
Apr. 5, 1949	250	--	8	7.0	169	11	--	.09	—	14	5.9	8.6		34	33	7	.2	6.6	111	59	31	--
LITTLE NESHAMINY CREEK AT HARTSVILLE																						
July 12, 1948	--	--	3	7.5	165	13	--	.06	--	13	4.9	9.8		42	25	7.2	.0	4.0	106	53	18	--
Apr. 5, 1949	--	49	5	7.2	165	11	--	.25	—	16	8.3	2.6		38	31	8	--	6.3	--	74	43	--
POQUESSING CREEK AT PHILADELPHIA																						
July 12, 1948	--	72	3	7.3	143	15	--	.04	--	9.4	4.4	9.9		23	17	12	.0	12	97	42	23	--
Apr. 5, 1949	--	51	8	7.2	149	13	--	.07	--	9.6	4.9	9.5		20	20	12	.1	13	102	44	28	--

MISCELLANEOUS ANALYSES OF STREAMS IN DELAWARE RIVER BASIN--Continued

Chemical analyses, in parts per million

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Non-carbonates	Total acidity as H_2SO_4
PENNYPACK CREEK AT PHILADELPHIA																						
July 12, 1948	--	--	15	9.3	297	16	--	.14	--	14	5.2	41		[a]113	29	12	.0	6.4	193	56	0	--
Apr. 5, 1949	--	49	10	7.4	196	14	--	.21	--	14	6.0	12		40	33	11	.0	4.2	127	60	27	--
FRANKFORD CREEK AT BRIDGE STREET, PHILADELPHIA																						
Apr. 5, 1949	--	57	100	8.2	1190	40	--	.24	--	26	7.8	210		390	183	28	--	3.6	--	97	--	--
SCHUYLKILL RIVER AT MIDDLEPORT																						
Sept. 10, 1947	10	--	3	4.00	1010	17	26	1.9	6.0	49	37	33		0	466	19	.1	.4	601	440	440	57
SCHUYLKILL RIVER AT PORT CARBON																						
Apr. 6, 1949	83	45	1	4.25	465	9.4	6.0	.33	2.0	29	16	8.6		0	183	3.0	.0	2.4	301	178	178	52
Apr. 14,	81	54	2	3.70	438	9.0	6.4	.10	2.0	27	11	9.7		0	173	2.0	.0	.7	279	162	162	82
June 27,	19	70	5	3.40	877	13	5.8	.34	4.8	59	38	13	--	0	375	5.0	.0	1.2	568	369	369	138
Aug. 9,	11	70	3	3.40	969	14	13	.38	5.5	71	34	15	--	0	434	9.0	.0	.6	642	422	422	128
Sept. 21,	7.9	62	5	3.20	1010	17	13	.46	3.4	74	40	7.9	--	0	460	6.0	.0	.6	710	465	465	136
SCHUYLKILL RIVER AT POTTSVILLE																						
Sept. 10, 1947	37	72	3	--	1000	15	10	1.1	7.5	98	60	23		--	583	3.8	.2	.6	877	563	563	--
Apr. 12, 1948	570	54	1	3.85	564	--	--	--	--	--	--	--		0	256	--	--	--	--	210	210	68
Apr. 20,	560	52	2	3.95	561	11	6.9	.15	3.1	42	29	1.7		0	262	3.0	.1	.4	401	274	274	71
May 4,	369	52	1	4.00	685	--	--	--	--	--	--	--		0	327	--	.1	--	--	315	315	97
July 13,	48.8	57	1	3.65	1210	--	--	--	--	--	--	--		0	647	--	.1	--	--	613	613	164
July 20,	36.9	64	1	3.40	1260	13	17	.52	8.0	108	72	9.2		0	683	4.0	.2	.1	1030	697	697	152
July 27,	57.0	68	1	3.60	988	12	--	--	--	--	--	--		0	509	4.0	.1	--	--	410	410	--
Sept. 14,	27.8	64	1	3.20	1070	16	--	--	--	--	--	--		0	602	2.0	.0	.2	--	364	364	216
Sept. 21,	20.6	60	1	4.00	1060	14	15	.51	6.9	98	59	4.7		0	566	4.0	.0	.3	871	585	585	168
Sept. 28,	24.5	55	4	3.65	1070	14	--	--	--	--	--	--		0	648	2.0	.0	.6	--	675	675	213
SCHUYLKILL RIVER AT MOUNT CARBON																						
Apr. 12, 1948	608	54	1	4.40	546	--	--	--	--	--	--	--		0	250	--	--	--	--	210	210	56
Apr. 20,	597	55	3	4.10	544	11	4.6	.12	3.2	44	29	3.5		0	257	4.0	.0	.4	392	266	266	63
May 4,	394	52	1	4.35	669	--	--	--	--	--	--	--		0	316	--	.1	--	--	300	300	89
July 13,	52.0	68	1	3.95	1040	--	--	--	--	--	--	--		0	540	--	.0	--	--	605	605	132
July 20,	39.4	64	8	3.55	1100	13	14	1.3	7.0	95	63	3.6		0	581	5.0	.2	.3	872	605	605	124
July 27,	60.8	68	1	4.10	905	20	--	--	--	--	--	--		0	431	3.0	.1	--	--	345	345	--
Sept. 14,	29.7	65	15	4.00	674	14	--	--	--	--	--	--		0	455	6.0	.0	.7	--	407	407	122
Sept. 21,	22.0	62	7	4.10	903	13	8.5	2.1	5.5	77	49	16		0	464	4.0	.0	.8	729	461	461	102
Sept. 28,	26.4	56	7	4.45	980	13	--	--	--	--	--	--		0	472	2.0	.0	.6	--	501	501	115
SCHUYLKILL RIVER AT PORT CLINTON																						
Sept. 11, 1947	125	76	2	4.6	848	13	4.4	.27	4.0	76	45	35		0	440	17	.2	1.4	676	407	407	--
Apr. 12, 1948	914	54	1	4.7	345	--	--	--	--	--	--	--		0	139	--	--	--	--	123	123	21
Apr. 20,	751	56	1	4.40	418	8.6	2.3	.10	2.2	34	21	6.4		0	190	3.5	.0	.6	295	189	189	33
May 4,	398	56	1	4.9	469	--	--	--	--	--	--	--		0	207	--	.2	--	--	207	207	18
July 13,	150	78	1	4.8	748	--	--	--	--	--	--	--		2	360	--	.1	--	--	350	--	--

[a] Includes equivalent of 24 parts per million of carbonate (CO_3).

MISCELLANEOUS ANALYSES OF STREAMS IN DELAWARE RIVER BASIN--Continued

Chemical analyses, in parts per million

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ce)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (RCO_3)	Sulfete (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$		Total acidity as H_2SO_4
																				Total	Non-carbonate	
								SCHUYLKILL RIVER AT PORT CLINTON--Continued														
July 20, 1948	140	74	1	4.30	798	8.0	3.0	.25	4.4	71	45	15		0	399	4.5	.2	.2	610	390	390	52
July 27,	155	76	1	4.6	726	15	--	--	--	--	--	--		0	261	8.0	.1	--	--	380	380	--
Sept. 14,	77.0	70	3	4.15	817	12	--	--	--	--	--	--		0	405	6.0	.0	3.8	--	453	453	94
Sept. 21,	69.8	66	1	4.5	822	10	5.5	.45	4.2	71	47	12		0	414	4.0	.0	.0	665	410	410	70
Sept. 28,	66.7	54	4	4.5	743	8.6	--	--	--	--	--	--		0	449	4.0	.0	.2	--	553	553	85
								SCHUYLKILL RIVER AT HAMBURG														
Apr. 14, 1948	1320	48	1	4.8	308	--	--	--	--	--	--	--		1	132	--	--	--	--	98	--	27
Apr. 20,	1100	56	2	4.30	377	8.4	4.6	.10	2.0	30	16	2.8		0	166	3.5	.0	.6	258	172	172	41
May 4,	825	57	1	4.5	434	--	--	--	--	--	--	--		0	197	--	.3	--	--	177	177	38
July 13,	222	79	1	4.00	770	--	--	--	--	--	--	--		0	344	--	.0	--	--	407	407	112
July 20,	214	75	1	3.95	794	9.0	9.8	.34	4.4	65	44	7.7		0	402	6.0	.2	1.0	618	412	412	94
July 27,	298	77	2	4.20	738	8.0	--	--	--	--	--	--		0	376	6.0	.4	--	--	380	380	--
Sept. 14,	149	70	1	3.35	918	15	--	--	--	--	--	--		0	490	6.0	.0	.9	--	351	351	162
Sept. 21,	161	68	2	3.80	960	14	19	.35	6.0	72	51	6.0		0	506	6.0	.0	.5	820	515	515	138
Sept. 28,	155	58	4	4.05	857	11	--	--	--	--	--	--		0	488	2.0	.0	.3	--	378	378	190
								SCHUYLKILL RIVER AT BERNE														
Sept. 11, 1947	255	--	1	4.5	895	16	17	.30	5.0	70	47	3.7		0	456	3.0	.2	1.0	727	472	472	14
Dec. 11,	426	--	7	4.10	541	10	13	.84	--	42	23	--		0	245	6.0	.0	--	387	278	278	63
Dec. 16,	748	--	4	4.40	495	20	5.4	6.0	--	38	20	6.3		0	223	4.0	.0	--	367	224	224	39
Dec. 22,	444	--	4	4.00	533	20	11	1.2	--	40	24	--		0	239	6.0	.0	--	378	268	268	41
Dec. 31,	402	--	6	4.00	619	15	10	.94	--	41	18	42		0	307	8.0	.1	--	458	240	240	79
Jan. 7, 1948	502	--	7	4.20	487	12	9.1	.85	--	39	20	--		0	215	6.0	.0	--	341	236	236	44
Jan. 12,	410	--	8	3.90	578	5.0	12	1.4	--	41	25	--		0	264	6.0	.0	--	416	282	282	78
Jan. 20,	310	--	5	3.90	636	10	11	1.2	--	45	26	12		0	296	6.0	.0	--	462	290	290	103

(See analyses of daily samples beginning February 13, 1948)

Chemical analyses, in parts per million

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Non-carbonate	Total acidity as H_2SO_4
SCHUYLKILL RIVER AT LEESPORT																						
Apr. 13, 1948	1700	50	1	4.8	286	--	--	--	--	--	--	--		0	119	--	--	--	--	94	94	18
Apr. 20,	1510	57	2	4.40	353	7.6	.6	.07	1.8	28	16	9.8		0	151	4.5	.0	1.5	238	144	144	34
May 4,	961	58	1	4.8	426	--	--	--	--	--	--	--		0	177	--	--	--	--	165	165	40
July 13,	241	81	1	4.30	676	--	--	--	--	--	--	--		0	335	--	.0	--	--	371	371	86
July 20,	240	77	1	4.15	713	--	2.9	.33	3.6	58	41	21		0	362	5.5	.1	1.0	559	340	340	90
July 27,	296	80	3	4.30	641	10	--	--	--	--	--	--		0	282	4.0	.1	--	--	254	254	--
Sept. 14,	158	74	2	4.00	760	13	--	--	--	--	--	--		0	391	2.0	.0	1.9	--	378	378	128
Sept. 21,	136	68	1	4.30	824	13	15	.37	5.2	72	46	--		0	432	6.0	.0	.8	695	465	465	88
Sept. 28,	130	61	2	4.40	784	10	--	--	--	--	--	--		0	456	4.0	.0	.7	--	400	400	147
SCHUYLKILL RIVER AT READING NEAR MUHLENBERG STATION																						
Sept. 10, 1947	363	76	1	4.20	638	12	7.2	.08	3.3	55	32	4.2		0	293	15	.2	.7	464	318	318	60
Apr. 13, 1948	2410	50	1	6.9	234	7.0	--	--	--	--	--	--		12	87	--	--	--	--	80	--	--
Apr. 20,	2010	56	4	5.9	270	7.8	--	.04	--	23	12	8.1		7	106	3.5	.0	4.1	180	107	101	--
May 4,	1320	57	1	6.0	324	9.0	--	--	--	--	--	--		4	128	--	.0	--	--	144	--	--
July 13,	371	78	1	7.4	501	5.0	--	--	--	--	--	--		9	219	--	.1	--	--	234	--	--
July 20,	360	74	1	6.1	525	9.6	--	.07	--	50	30	6.6		6	238	5.0	.2	2.5	386	248	243	--
July 27,	426	77	1	6.7	480	8.0	--	--	--	--	--	--		38	209	5.0	.3	--	--	226	--	--
Sept. 14,	294	73	1	6.9	494	7.5	--	--	--	--	--	--		30	263	6.0	.0	4.8	--	244	--	--
Sept. 21,	245	68	5	6.7	528	5.9	--	.23	2.3	58	29	6.4		26	236	6.0	.0	3.0	391	264	243	--
Sept. 28,	200	65	3	6.4	532	6.4	--	--	--	--	--	--		17	247	6.0	.0	2.0	--	310	--	--
SCHUYLKILL RIVER TWO MILES BELOW ANGELICA CREEK NEAR READING																						
Apr. 14, 1948	3650	48	1	7.4	232	7.0	--	--	--	--	--	--		31	64	--	--	--	--	82	--	--
Apr. 21,	2750	58	2	6.9	277	7.8	--	.06	--	27	11	9.4		36	88	5.0	.0	6.0	183	113	83	--
May 5,	2640	56	1	6.9	262	8.0	--	--	--	--	--	--		41	72	--	.0	--	--	110	--	--
July 14,	1150	76	10	6.5	409	8.8	--	--	--	--	--	--		45	148	7.0	.2	7.8	--	174	--	--
July 20,	749	82	45	6.5	521	8.4	--	.10	--	52	24	17		95	164	12	.2	.2	395	228	151	--
July 27,	627	82	20	6.7	475	12	--	--	--	--	--	--		86	148	11	.1	--	--	178	--	--
Sept. 14,	586	79	40	6.6	486	8.9	--	--	--	--	--	--		91	134	12	.0	.9	--	323	--	--
Sept. 21,	446	72	20	7.1	530	8.2	--	.33	1.4	55	21	14		102	144	14	.0	2.2	361	224	140	--
Sept. 28,	416	71	60	6.8	504	6.8	--	--	--	--	--	--		96	171	16	.0	.9	--	283	--	--
SCHUYLKILL RIVER AT BIRDSBORO																						
Sept. 11, 1947	700	82	2	6.5	539	9.2	--	.02	.02	53	25	14		29	205	16	.3	6.8	372	235	211	--

PYP712, 1716
Inc. 24, I
APRIL 1952
OMMERCE
APHS

MISCELLANEOUS ANALYSES OF STREAMS IN DELAWARE RIVER BASIN--Continued

Chemical analyses, in parts per million

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Non-carbonate	Total acidity as H_2SO_4
SCHUYLKILL RIVER AT MONOCACY																						
Apr. 14, 1948	4020	—	1	7.4	234	8.0	—	—	—	—	—	—		34	64	—	—	—	—	81	—	—
Apr. 21,	3000	58	2	6.6	272	8.2	—	.06	—	27	11	7.6		32	87	5.5	.0	5.8	179	113	86	—
May 5,	3990	53	1	6.8	148	10	—	—	—	—	—	—		26	35	—	.0	—	—	56	—	—
July 14,	1120	—	12	6.6	352	12	—	—	—	—	—	—		49	114	9.0	.2	6.8	—	147	—	—
July 21,	639	78	12	6.9	469	9.6	—	.05	—	46	23	13		60	145	18	.2	7.1	321	209	160	—
July 28,	628	79	4	6.8	432	8.0	—	—	—	—	—	—		48	123	14	.1	—	—	218	—	—
Sept. 15,	593	68	5	7.3	453	8.6	—	—	—	—	—	—		60	140	16	.0	6.4	—	183	—	—
Sept. 22,	485	65	6	7.4	473	8.9	—	.25	.04	53	21	6.8		80	135	16	.0	6.0	300	219	153	—
Sept. 29,	360	65	6	7.0	422	4.5	—	—	—	—	—	—		78	138	18	.0	5.5	—	146	—	—
SCHUYLKILL RIVER AT STOWE																						
Apr. 14, 1948	4080	47	1	7.2	228	8.0	—	—	—	—	—	—		33	60	—	—	—	—	80	—	—
Apr. 21,	3040	59	3	6.7	262	8.4	—	.07	—	26	11	7.2		32	84	5.0	.0	6.0	170	110	84	—
May 5,	4050	54	1	6.7	199	11	—	—	—	—	—	—		30	53	—	.2	—	—	76	—	—
July 14,	1140	78	13	6.6	330	8.0	—	—	—	—	—	—		50	102	10	.2	5.0	—	144	—	—
July 21,	639	78	10	7.1	446	8.0	—	.07	—	45	19	14		62	143	11	.2	6.2	299	190	140	—
July 28,	638	80	1	7.0	441	8.0	—	—	—	—	—	—		52	132	14	.1	—	—	204	—	—
Sept. 15,	602	68	6	7.2	428	8.9	—	—	—	—	—	—		66	132	12	.0	5.2	—	207	—	—
Sept. 22,	493	62	8	7.2	472	8.6	—	.28	.05	50	17	22		78	149	14	.0	5.7	304	195	131	—
Sept. 29,	489	64	5	7.1	430	5.6	—	—	—	—	—	—		81	150	14	.0	7.4	—	196	—	—
SCHUYLKILL RIVER AT SANATOGA																						
Apr. 14, 1948	4430	48	1	7.3	232	8.0	—	—	—	—	—	—		38	57	—	—	—	—	81	—	—
Apr. 21,	3300	59	4	6.9	261	9.0	—	.07	—	26	10	9.0		39	77	6.0	.1	5.9	170	106	74	—
May 5,	6690	54	1	6.8	194	13	—	—	—	—	—	—		39	45	—	.0	—	—	74	—	—
July 14,	1290	78	10	6.7	326	10	—	—	—	-	—	—		68	85	8.0	.2	6.1	—	138	—	—
July 21,	799	78	9	7.2	440	10	—	.12	—	43	20	15		72	135	12	.2	6.4	297	190	131	—
July 28,	857	80	4	7.3	414	12	—	—	—	—	—	—		62	121	10	.1	—	—	189	—	—
Sept. 15,	670	68	6	7.3	407	8.8	—	—	—	—	—	—		73	126	12	.0	6.0	—	177	—	—
Sept. 22,	552	64	5	7.4	464	8.4	—	.20	.13	52	22	9.1		86	129	15	.0	5.4	313	220	150	—
Sept. 29,	489	—	6	6.8	419	5.9	—	—	—	—	—	—		81	147	14	.0	7.3	—	270	—	—

Chemical analyses, in parts per million

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Non-carbonate	Total acidity as H_2SO_4
SCHUYLKILL RIVER AT PHOENIXVILLE																						
Apr. 14, 1948	4,490	49	1	7.1	235	8.0	--	--	--	--	--	--	--	34	63	--	--	--	--	80	--	--
Apr. 21,	3,340	59	4	6.8	264	8.2	--	.05	--	25	9.6	8.2	--	34	76	6.0	.1	6.3	163	102	74	--
May 5,	6,780	53	1	6.8	251	9.0	--	--	--	--	--	--	--	18	71	--	.0	--	--	104	--	--
July 14,	1,310	79	10	6.6	314	9.6	--	--	--	--	--	--	--	53	89	8.0	.2	6.8	--	132	--	--
July 21,	794	79	6	7.2	446	9.6	--	.08	--	44	19	12	--	64	132	13	.2	6.0	301	186	135	--
July 28,	868	81	4	7.0	406	15	--	--	--	--	--	--	--	48	114	12	.0	--	--	211	--	--
Sept. 15,	678	68	5	7.3	419	8.6	--	--	--	--	--	--	4.4	70	126	16	.0	3.5	--	183	--	--
Sept. 22,	558	65	5	7.4	461	8.8	--	.33	.03	58	22	--	--	98	131	16	.0	6.8	306	235	153	--
Sept. 29,	494	64	6	6.9	432	5.5	--	--	--	--	--	--	--	83	136	14	.0	7.6	--	207	--	--
SCHUYLKILL RIVER BELOW FRENCH CREEK AT PHOENIXVILLE																						
Apr. 14, 1948	4,630	48	1	7.1	228	9.0	--	--	--	--	--	--	--	33	58	--	--	--	--	84	--	--
Apr. 21,	3,450	59	5	7.0	252	7.8	--	.07	--	24	9.4	9.2	--	35	74	5.5	.0	6.2	161	99	66	--
May 5,	7,000	56	1	6.8	257	9.0	--	--	--	--	--	--	--	54	77	--	.0	--	--	102	--	--
July 14,	1,350	74	40	6.3	142	13	--	--	--	--	--	--	--	31	28	4.0	.2	3.8	--	60	--	--
July 21,	814	78	7	7.2	379	12	--	.06	--	36	15	14	--	59	108	12	.1	5.9	256	152	103	--
July 28,	896	79	7	7.1	184	8.0	--	--	--	--	--	--	--	66	27	11	.0	--	--	109	--	--
Sept. 15,	701	69	3	7.3	367	10	--	--	--	--	--	--	--	69	99	10	.0	3.4	--	219	--	--
Sept. 22,	578	65	5	7.4	401	9.8	--	.19	.0	44	20	5.8	--	72	114	12	.0	5.6	285	192	133	--
Sept. 29,	510	65	5	6.8	280	9.4	--	--	--	--	--	--	--	69	52	14	.0	4.8	--	159	--	--
SCHUYLKILL RIVER AT PORT KENNEDY																						
Apr. 14, 1948	14,600	48	1	7.0	217	9.0	--	--	--	--	--	--	--	34	66	--	--	--	--	74	--	--
Apr. 21,	3,660	59	3	6.8	237	8.8	--	.06	--	22	9.0	9.9	--	37	68	6.5	.0	5.7	152	92	62	--
May 5,	12,100	55	1	6.8	172	11	--	--	--	--	--	--	--	34	43	--	.0	--	--	69	--	--
July 14,	3,560	80	12	6.6	245	9.2	--	--	--	--	--	--	--	61	55	7.0	.2	4.8	--	99	--	--
July 21,	811	80	6	7.4	372	10	--	.07	--	37	15	12	--	62	109	9.0	.2	2.2	253	154	103	--
July 28,	1,150	--	8	7.3	316	10	--	--	--	--	--	--	--	62	84	8.0	.0	--	--	168	--	--
Sept. 15,	683	70	3	7.2	363	8.8	--	--	--	--	--	--	--	68	91	10	.0	1.8	--	146	--	--
Sept. 22,	448	66	5	7.4	408	7.2	--	.57	.09	44	19	5.9	--	78	110	14	.0	5.1	294	190	126	--
Sept. 29,	425	66	5	6.6	371	4.6	--	--	--	--	--	--	--	84	114	14	.0	6.2	--	219	--	--
SCHUYLKILL RIVER AT CONSHOHOCKEN																						
Apr. 15, 1948	15,100	46	1	6.8	205	7.0	--	--	--	--	--	--	--	49	43	--	--	--	--	68	--	--
Apr. 21,	3,780	58	3	6.9	252	8.2	--	.07	--	23	9.0	8.2	--	39	64	6.0	.0	6.9	145	94	62	--
May 5,	12,400	56	1	6.8	255	9.0	--	--	--	--	--	--	--	47	71	--	.1	--	--	104	--	--
July 14,	3,560	79	13	6.4	210	10	--	--	--	--	--	--	--	44	52	5.0	.4	4.0	--	84	--	--
July 21,	838	80	10	7.3	379	10	--	.08	--	36	16	14	--	72	103	10	.2	6.6	253	156	96	--
July 28,	1,190	81	4	7.1	316	12	--	--	--	--	--	--	--	64	98	8.0	.2	--	--	161	--	--
Sept. 15,	707	74	5	7.1	350	9.5	--	--	--	--	--	--	--	72	88	10	.0	2.4	--	183	--	--
Sept. 22,	463	70	5	7.2	431	7.4	--	.32	.11	48	22	4.0	--	92	113	16	.0	5.2	306	211	136	--
Sept. 29,	439	69	15	6.7	382	5.1	--	--	--	--	--	--	--	96	105	18	.0	6.2	--	196	--	--

RAPHS
OMMERCE
APRIL 1952
PYP712.17/9
[no. 24]
#24

MISCELLANEOUS ANALYSES OF STREAMS IN DELAWARE RIVER BASIN--Continued

Chemical analyses, in parts per million

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfates (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$		Total acidity as H_2SO_4
																				Total	Noncarbonate	
SCHUYLKILL RIVER AT GIRARD AVENUE IN PHILADELPHIA																						
Sept. 10, 1947	635	80	10	7.0	413	8.8	--	--	.10	40	18	14		50	137	13	.2	6.0	275	177	136	--
Apr. 15, 1948	15,500	48	1	7.0	202	9.0	--	--	--	--	--	--		40	46	--	--	--	--	69	--	--
Apr. 22,	3,890	58	5	7.0	248	9.0	--	.06	--	24	9.2	9.0		42	66	6.5	.1	6.0	154	98	63	--
May 6,	12,900	55	1	6.8	166	9.0	--	--	--	--	--	--		32	39	--	.0	--	--	60	--	--
July 15,	4,960	76	20	6.6	240	9.6	--	--	--	--	--	--		56	58	6.0	.3	3.8	--	98	--	--
July 21,	861	82	12	7.2	374	11	--	.07	--	36	15	15		75	97	13	.1	4.8	244	152	90	--
July 28,	1,220	80	10	7.1	287	5.0	--	--	--	--	--	--		76	53	8.0	.0	--	--	148	--	--
Sept. 15,	725	66	5	7.1	343	9.2	--	--	--	--	--	--		78	85	12	.0	2.9	--	183	--	--
Sept. 22,	475	70	10	7.4	431	8.0	--	.32	.10	45	21	7.0		96	106	18	.0	.4	283	199	120	--
Sept. 29,	450	69	10	6.7	403	5.2	--	--	--	--	--	--		97	100	18	.0	5.5	--	196	--	--
SCHUYLKILL RIVER AT PASSAYUNK AVENUE IN PHILADELPHIA																						
Apr. 15, 1948	--	--	1	6.9	220	9.0	--	--	--	--	--	--		46	49	--	--	--	--	76	--	--
Apr. 22,	--	--	4	6.6	267	9.2	--	.08	--	24	9.3	13		44	71	9.0	.0	5.6	168	98	62	--
May 6,	--	55	1	6.8	173	10	--	--	--	--	--	--		35	38	--	.0	--	--	58	--	--
July 15,	--	77	19	6.5	229	9.6	--	--	--	--	--	--		56	57	8.0	.2	--	--	84	--	--
July 21,	--	86	12	6.9	448	12	--	.11	--	35	15	34		92	114	20	.3	.2	280	149	74	--
July 28,	--	82	7	7.1	313	10	--	--	--	--	--	--		62	81	14	.0	--	--	152	--	--
Sept. 15,	--	79	28	6.8	446	11	--	--	--	--	--	--		100	91	36	.0	.4	--	159	--	--
Sept. 22,	--	78	45	7.2	513	10	--	.91	.25	47	17	34		124	115	30	.0	.3	320	190	88	--
Sept. 29,	--	--	120	7.1	499	8.9	--	--	--	--	--	--		129	110	36	.0	2.2	--	196	--	--
MILL CREEK AT PORT CARBON																						
Sept. 10, 1947	19	73	1	5.0	1370	15	15	.87	12	138	95	12		0	828	3.8	.3	.4	1260	843	843	--
Apr. 20, 1948	36.9	--	3	4.20	529	--	--	--	--	--	--	--		0	259	3.0	--	--	--	--	--	94
NORWEGIAN CREEK AT POTTSVILLE																						
Sept. 10, 1947	1.0	71	2	7.2	373	7.6		.03	.00	40	14	14		78	103	4.6	.8	11	239	157	93	--
TUMBLING RUN NEAR POTTSVILLE																						
Apr. 20, 1948	--	50	8	7.7	43.2	--	--	--	--	--	--	--		12	10	1.0	--	--	--	--	--	--
WEST BRANCH SCHUYLKILL RIVER AT MINERSVILLE																						
Sept. 11, 1947	15	64	2	4.4	1670	16	13	.59	10	152	116	43		0	994	3.5	.4	1.2	1500	949	949	116

Chemical analyses, in parts per million

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Non-carbonate	Total acidity as H_2SO_4
									WEST BRANCH SCHUYLKILL RIVER AT LLEWELLYN													
Sept. 11, 1947	10	71	1	7.8	2070	9.0	--	.76	.00	173	111	194		194	1100	2.0	.6	3.0	1870	888	729	--
									WEST BRANCH SCHUYLKILL RIVER AT CRESSONA													
Sept. 11, 1947	28	69	1	5.6	1280	11	--	.25	6.0	119	81	63		2	731	2.0	.3	1.5	1080	630	628	--
Apr. 12, 1948	--	54	--	5.0	523	7.0	--	--	--	--	--	--		1	233	--	--	--	--	207	--	8
Apr. 20,	187	50	3	4.30	599	9.2	2.4	.12	2.8	47	35	9.7		0	287	3.0	.0	.4	436	282	282	30
May 4,	98.6	50	1	4.6	658	9.0	--	--	--	--	--	--		0	306	--	.1	--	--	300	300	32
July 13,	51.9	68	1	5.5	983	4.0	--	--	--	--	--	--		8	507	--	.0	--	--	570	--	--
July 20,	40.5	64	1	4.15	1190	9.0	3.0	.23	5.6	115	77	18		0	644	2.0	.3	.1	965	634	634	38
July 27,	36.7	67	2	4.30	1080	20	--	--	--	--	--	--		0	362	10	.1	--	--	372	372	--
Sept. 14,	18.6	64	1	3.85	1200	13	--	--	--	--	--	--		0	679	10	.0	.3	--	484	484	91
Sept. 21,	24.8	61	10	3.20	1580	12	10	1.5	5.5	137	78	39		0	813	2.0	.0	.3	1200	768	768	190
Sept. 28,	14.9	53	3	4.5	1170	9.5	--	--	--	--	--	--		0	541	4.0	.0	.3	--	623	623	53
									LITTLE SCHUYLKILL RIVER AT TAMAQUA													
Sept. 10, 1947	24	67	1	3.90	251	8.0	6.2	.07	1.0	14	5.9	2.0		0	93	6.0	.3	.2	147	102	102	58
Apr. 13, 1948	235	45	1	4.9	90.2	5.0	--	--	--	--	--	--		1	25	--	--	--	--	26	--	9
Apr. 20,	179	52	5	4.45	90.1	3.2	.2	.28	.25	5.4	2.1	4.5		0	28	3.0	.0	2.7	51	25	25	15
May 4,	76.0	50	1	4.35	155	7.0	--	--	--	--	--	--		0	42	--	--	--	--	34	34	23
July 13,	27.4	70	1	4.00	249	4.0	--	--	--	--	--	--		0	90	--	.0	--	--	141	141	60
July 20,	23.3	69	2	3.90	235	8.6	5.8	.17	.85	11	6.3	--		0	89	3.0	.1	2.1	146	94	94	50
July 27,	33.8	59	1	4.5	181	6.0	--	--	--	--	--	--		0	54	9.0	.0	--	--	380	380	--
Sept. 14,	9.8	64	1	3.90	248	9.0	--	--	--	--	--	--		0	91	4.0	.0	.6	--	134	134	55
Sept. 21,	9.2	62	1	4.20	253	7.9	3.3	.40	.92	13	7.9	8.5		0	95	6.0	.0	1.0	181	97	97	58
Sept. 28,	6.8	56	5	4.25	202	6.6	--	--	--	--	--	--		0	93	4.0	.0	.2	--	270	270	51
Sept. 19, 1949	18.2	69	2	4.10	166	7.0	3.0	.08	.25	10	4.3	1.8		0	59	5.0	.1	1.8	91	66	66	36
									LITTLE SCHUYLKILL RIVER AT SOUTH TAMAQUA													
Apr. 13, 1948	304	--	1	3.90	505	--	--	--	--	--	--	--		0	203	--	--	--	--	126	126	81
Apr. 20,	286	54	2	3.70	533	10	10	.16	2.7	32	22	7.3		0	240	5.0	.0	1.0	362	241	241	115
May 4,																						
July 13,	63.6	69	1	4.00	1020	--	--	--	--	--	--	--		0	536	--	.1	--	--	343	343	193
July 20,	67.3	66	1	3.25	1720	14	47	1.4	10	154	97	10		0	1070	4.0	.2	.2	1610	110	110	352
July 27,	82.2	71	4	3.40	1170	17	--	--	--	--	--	--		0	553	7.0	.1	--	--	460	460	--
Sept. 14,	54.7	64	1	2.60	1460	18	--	--	--	--	--	--		0	775	6.0	.0	.5	--	468	468	398
Sept. 21,	59.8	63	1	3.60	1490	16	39	.32	8.0	138	79	8.0		0	865	4.0	.0	.5	1410	914	914	300
Sept. 28,	49.5	61	6	3.45	1210	14	--	--	--	--	--	--		0	758	4.0	.0	.7	--	570	570	425

RAPHS
OMMERCE
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I no. 243
#24

MISCELLANEOUS ANALYSES OF STREAMS IN DELAWARE RIVER BASIN--Continued

Chemical analyses, in parts per million

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$		Total acidity as H_2SO_4
																				Total	Non-carbonate	
LITTLE SCHUYLKILL RIVER AT NEW RINGGOLD																						
Sept. 10, 1947-----	83	--	2	4.5	934	19	27	.49	4.0	76	44	9.2		0	521	3.9	.3	.8	811	529	529	192
LITTLE SCHUYLKILL RIVER AT DREHERSVILLE																						
Sept. 10, 1947-----	110	--	1	4.40	934	17	25	3.0	5.0	72	42	21		0	512	15	.3	1.0	795	510	510	198
LITTLE SCHUYLKILL RIVER AT PORT CLINTON																						
Apr. 12, 1948------	725	56	1	4.25	269	--	--	--	--	--	--	--		0	110	--	--	--	--	76	76	39
Apr. 20,----------	420	56	2	4.00	309	8.0	.7	.14	1.5	20	12	14		0	129	4.0	.0	2.1	200	111	111	49
May 4,----------	200	57	1	4.35	443	--	--	--	--	--	--	--		0	184	--	.1	--	--	141	141	70
July 13,----------	95.5	77	1	3.60	923	--	--	--	--	--	--	--		0	438	--	.0	--	--	509	509	212
July 20,----------	70.0	74	1	3.45	958	11	21	.50	5.2	66	47	2.3		0	495	4.5	.2	4.1	733	521	521	184
July 27,----------	90.2	76	2	3.60	886	20	--	--	--	--	--	--		0	269	8.0	.1	--	--	343	343	--
Sept. 14,----------	58.0	69	3	2.90	1140	17	--	--	--	--	--	--		0	637	10	.0	.8	--	437	437	271
Sept. 21,----------	69.8	65	2	3.60	1190	16	37	.72	8.0	92	59	10		0	679	4.0	.0	2.0	1060	707	707	244
Sept. 28,----------	47.7	55	3	3.70	988	13	--	--	--	--	--	--		0	627	6.0	.0	.8	--	476	476	329
Sept. 19, 1949-----	73.1	76	0	3.65	717	12	16	.12	2.3	52	28	9.6		0	343	8.0	.1	2.1	498	350	350	153
WEST BRANCH LITTLE SCHUYLKILL RIVER AT GINTHERS																						
Sept. 19, 1949-----	6.44	60	0	3.40	438	11	11	.30	.84	15	7.1	5.8		0	154	2.0	.1	1.1	214	152	152	115
STILL CREEK ONE-THIRD MILE SOUTH OF GINTHERS, RT. 29																						
Sept. 19, 1949-----	.69	62	5	6.4	77.2	4.0	--	.25	.0	9.0	2.1	1.8		18	16	1.8	.1	1.0	46	31	16	--
PINE CREEK BETWEEN BARNESVILLE AND HOMETOWN, RT. 45																						
Sept. 19, 1949-----	3.06	68	1	6.3	73.3	4.6	--	.02	.0	7.0	1.7	3.2		14	14	3.8	.0	.1	45	24	13	--
LOCUST CREEK, TWO AND ONE-HALF MILES NORTH OF TAMAQUA, RT. 29																						
Sept. 19, 1949-----	4.10	65	5	6.5	47.3	2.2	--	.02	.0	5.0	1.6	1.4		16	6.0	2.0	.0	.0	31	19	6	--

Chemical analyses, in parts per million

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Noncarbonate	Total acidity as H_2SO_4
								PANTHER CREEK AT TAMAQUA														
Sept. 10, 1947	40	—	2	3.70	1840	23	77	.83	15	139	94	16		0	1170	12	.3	1.0	1750	1200	1200	580
Apr. 13, 1948	73.2	48	1	3.60	1430	--	--	--	--	--	--	--		0	798	--	--	--	660	660	660	322
Apr. 20,	59.3	58	2	3.30	1430	17	37	.57	7.2	117	74	13		0	829	7.0	.1	.2	844	844	844	308
May 4,	54.2	52	1	3.70	1690	--	--	--	--	--	--	--		0	980	--	.1	--	900	900	900	384
July 13,	25.1	66	1	3.30	1670	--	--	--	--	--	--	--		0	996	--	.4	--	716	716	716	536
July 20,	29.2	67	1	3.25	1340	13	37	1.2	7.2	100	67	3.0		0	744	7.0	.2	.4	779	779	779	312
July 27,	41.7	67	4	3.20	1870	15	--	--	--	--	--	--		0	1140	8.0	.1	.1	1010	1010	1010	--
Sept. 14,	32.4	62	2	2.60	1930	21	--	--	--	--	--	--		0	1300	12	.0	.5	587	587	587	690
								BEAVER CREEK, ONE-FOURTH MILE NORTH OF HECLA														
Sept. 21,	43.6	62	1	3.50	1470	14	34	.85	5.7	144	86	6.6		0	899	6.0	.0	.1	1430	931	931	248
Sept. 28,	30.4	60	7	3.30	1590	14	--	--	--	--	--	--		0	1090	4.0	.0	3.5	650	650	650	496
Sept. 10, 1949	22.3	68	0	3.15	1940	25	64	1.6	8.2	167	107	1.2		0	1190	21	2.0	1.1	1690	1270	1270	436
								INDIAN RUN CREEK AT RAUCH'S DAM, ONE AND ONE-HALF MILES NORTHEAST OF DREHERSVILLE														
Sept. 19, 1949	4.97	67	5	6.5	67.8	4.0	--	.02	.0	6.8	1.8	3.1		16	10	3.5	.1	3.0	43	24	11	--
Sept. 19, 1949	6.37	69	5	6.5	85	6.2	—	.02	.0	5.4	1.9	1.9		15	8.7	2.0	.1	1.2	38	21	9	—
								MAIDEN CREEK NEAR LENHARTSVILLE														
Sept. 11, 1947	22	80	3	8.3	104	4.6	--	.05	.0	12	3.2	5.2		[a]44	11	2.5	.5	2.4	64	43	7	—
								MAIDEN CREEK NEAR TEMPLE														
Sept. 10, 1947	47	72	4	7.7	206	6.7	--	.01	.0	28	8.2	1.3		103	14	3.1	.1	3.6	121	104	19	--
Apr. 13, 1948	675	50	1	9.0	212	6.0	--	--	--	--	--	--		678	31	--	--	--	--	40	--	--
Apr. 20,	490	55	12	7.3	166	7.4	--	.10	--	19	5.9	3.8		60	19	3.5	.0	7.5	108	72	22	--
May 4,	333	58	1	7.3	188	7.0	--	--	--	--	--	--		75	18	--	.1	--	--	82	--	--
July 13,	122	74	1	8.0	238	4.0	--	--	--	--	--	--		114	18	--	.3	--	--	81	--	--
July 20,	118	72	4	7.6	243	5.0	--	.08	--	30	10	4.0		116	18	4.0	.1	5.9	141	116	21	--
July 27,	128	71	3	7.1	253	7.0	--	--	--	--	--	--		158	33	6.0	.2	--	--	189	--	--
Sept. 14,	135	69	3	7.9	237	6.8	--	--	--	--	--	--		99	14	4.0	.0	3.7	--	232	--	--
Sept. 21,	108	63	5	6.8	260	5.9	--	.20	.10	31	10	--		110	16	4.0	.0	--	127	118	27	--
Sept. 28,	69.0	62	6	7.5	202	4.2	--	--	--	--	--	--		113	16	4.0	.0	6.3	--	183	--	--
								SACONY CREEK (300' above mouth) AT VIRGINVILLE														
Sept. 10, 1947	13	72	5	7.4	217	7.2	—	.01	.0	30	6.1	5.2		96	17	5.0	.1	9.3	131	100	21	--

[a] Includes equivalent of 2 parts per million of carbonate (CO_3).
[b] Includes equivalent of 9 parts per million of carbonate (CO_3).

RAPHS
OMMERCE
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PYP712.17/9
no. 24
#24

MISCELLANEOUS ANALYSES OF STREAMS IN DELAWARE RIVER BASIN--Continued

Chemical analyses, in parts per million

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$		Total acidity as H_2SO_4
																				Total	Non-carbonate	
TULPEHOCKEN CREEK NEAR BERNVILLE																						
Sept. 10, 1947-----	89	71	4	7.9	394	6.4	--	.02	.0	58	15	2.0		197	27	4.6	.1	18	235	206	45	--
TULPEHOCKEN CREEK AT WEST BRIDGEPORT																						
Sept. 10, 1947-----	134	73	4	7.7	348	7.2	--	.02	.0	50	13	3.0		170	26	4.8	.1	14	209	178	39	--
Apr. 13, 1948-----	926	50	1	7.6	254	8.0	--	--	--	--	--	--		108	27	--	--	--	--	93	--	--
Apr. 20,-----------	550	58	6	7.3	265	8.0	--	.06	--	35	8.1	6.8		117	23	5.0	.0	11	158	121	25	--
May 4,-----------	1410	56	1	7.8	290	7.0	--	--	--	--	--	--		129	22	--	.0	--	--	132	--	--
July 13,-----------	178	77	1	7.7	335	4.0	--	--	--	--	--	--		156	27	--	.3	--	--	219	--	--
July 20,-----------	139	72	12	7.6	342	6.0	--	.07	--	44	13	4.4		158	28	5.0	.1	8.1	207	163	34	--
July 27,-----------	103	75	5	7.4	354	5.0	--	--	--	--	--	--		162	38	7.0	.1	--	--	148	--	--
Sept. 14,-----------	107	71	5	7.6	331	5.4	--	--	--	--	--	--		155	29	6.0	.0	8.8	--	183	--	--
Sept. 21,-----------	108	68	5	7.5	343	5.0	--	.41	.05	50	14	3.0		154	29	8.0	.0	9.7	239	182	43	--
Sept. 28,-----------	104	60	5	7.5	287	2.2	--	--	--	--	--	--		175	27	6.0	.0	12	--	183	--	--
NORTHKILL CREEK NEAR BERNVILLE																						
Sept. 10, 1947-----	12	74	5	7.5	137	6.7	--	.02	.0	17	4.5	4.1		64	9.1	2.8	.1	4.6	82	61	8	--
WYOMISSING CREEK AT WEST READING																						
Apr. 13, 1948-----	39.3	--	1	7.4	415	--	--	--	--	--	--	--		136	31	--	--	--	--	126	--	--
Apr. 20,-----------	34.5	62	15	7.1	--	11	--	.06	--	36	12	17		147	30	17	.0	.2	198	139	19	--
May 4,-----------	224	60	1	7.4	371	17	--	--	--	--	--	--		154	29	--	.4	--	--	135	--	--
July 13,-----------	19.4	--	1	7.5	451	6.0	--	--	--	--	--	--		100	37	--	.2	--	--	170	--	--
July 20,-----------	16.8	--	15	7.2	501	11	--	.08	--	46	16	34		212	40	28	.1	.2	288	181	7	--
July 27,-----------	13.7	72	10	7.4	507	17	--	--	--	--	--	--		182	30	38	.1	--	--	155	--	--
Sept. 14,-----------	8.41	71	35	7.0	556	16	--	--	--	--	--	--		214	25	52	.0	.7	--	196	--	--
Sept. 21,-----------	8.43	69	30	6.8	593	13	--	.20	.03	53	17	46		220	37	60	.0	.9	--	202	22	--
Sept. 28,-----------	6.87	67	120	7.0	691	9.8	--	--	--	--	--	--		218	42	58	.0	2.8	--	207	--	--

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MISCELLANEOUS ANALYSES OF STREAMS IN DELAWARE RIVER BASIN--Continued

Chemical analyses, in parts per million

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhoe at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ce)	Magnesium (Mg)	Sodium (Na)	Potaeium (K)	Bicarbonate (HCO_3)	Sulfete (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solide	Hardness es $CaCO_3$ Total	Hardness es $CaCO_3$ Non-carbonate	Total acidity as H_2SO_4
ANGELICA CREEK AT READING																						
Apr. 13, 1948	18.2	--	1	7.3	192	--	--	--	--	--	--	--		60	19	--	--	--	--	66	--	--
Apr. 21,	16.6	58	15	6.5	185	13	--	.30	--	17	6.3	11		70	20	9.0	.0	.1	112	68	11	--
May 5,	102	53	1	7.2	163	16	--	--	--	--	--	--		53	17	--	.1	--	--	62	--	--
July 14,	7.59	74	1	6.4	300	14	--	--	--	--	--	--		140	18	12	.0	.2	--	93	--	--
July 20,	6.52	76	28	6.6	577	21	--	.09	--	26	10	72		134	36	81	.1	.2	333	106	0	--
July 27,	7.37	78	70	6.5	232	12	--	--	--	--	--	--		96	30	11	.1	--	--	146	--	--
Sept. 14,	3.39	75	120	6.6	796	22	--	--	--	--	--	--		409	4.9	26	.0	.9	--	219	--	--
Sept. 21,	3.47	72	40	6.9	552	23	--	1.1	.10	33	8.3	53		278	23	20	.0	2.3	346	116	0	--
Sept. 28,	3.79	68	140	6.8	786	22	--	--	--	--	--	--		440	12	18	.0	2.5	--	134	--	--
ANTIETAM CREEK NEAR LORANE																						
Apr. 14, 1948	54.3	45	1	7.3	183	15	--	--	--	--	--	--		64	25	--	--	--	--	64	--	--
Apr. 21,	36.9	58	8	7.3	214	13	--	.07	--	21	8.9	6.8		81	23	6.0	.0	6.2	121	89	23	--
May 5,	182	53																				
July 14,	25.6	71	12	6.8	226	21	--	--	--	--	--	--		92	21	7.0	.2	5.0	--	92	--	--
July 21,	9.96	68	10	7.5	293	15	--	.07	--	29	13	12		135	18	12	.1	6.3	179	126	15	--
July 28,	9.63	71	5	7.6	292	8.0	--	--	--	--	--	--		134	23	8.0	.2	--	--	109	--	--
Sept. 14,	10.1	58	5	7.8	306	14	--	--	--	--	--	--		143	24	6.0	.0	7.2	--	159	--	--
Sept. 22,	7.47	55	7	7.6	317	13	--	.24	.13	32	17	7.5		156	21	12	.0	5.4	190	150	22	--
Sept. 29,	6.03	51	4	7.6	271	8.6	--	--	--	--	--	--		161	15	8.0	.0	7.2	--	219	--	--
HAY CREEK AT BIRDSBORO																						
Sept. 11, 1947	11	77	4	7.1	106	13	--	.02	.00	11	3.6	4.0		37	13	3.2	.1	2.8	71	42	12	--
MONOCACY CREEK NEAR MONOCACY																						
Sept. 11, 1947	18	74	4	7.8	354	11	--	.03	.00	53	13	2.8		185	25	4.2	.2	9.6	216	186	34	--
MANATAWNY CREEK NEAR MANATAWNY																						
Sept. 11, 1947	31	70	10	7.6	171	17	—	.03	.00	18	7.9	4.7		84	11	3.1	.1	3.3	108	77	9	--

APRIL 1952
COMMERCE
GRAPHS

MISCELLANEOUS ANALYSES OF STREAMS IN DELAWARE RIVER BASIN--Continued

Chemical analyses, in parts per million

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$		Total acidity as H_2SO_4
																				Total	Non-carbonate	
MANATAWNY CREEK AT POTTSTOWN																						
Sept. 11, 1947	78	71	12	7.4	230	14	--	.04	.00	27	9.6	5.0		104	18	6.2	.2	5.4	140	107	22	--
Apr. 14, 1948	549	46	1	7.4	184	14	--	--	--	--	--	--		65	19	--	--	--	--	64	--	--
Apr. 21,	198	59	8	7.3	186	12	--	.12	--	21	7.1	6.3		77	20	4.5	.1	5.8	122	82	19	--
May 5,	1,440	53	1	6.7	138	14	--	--	--	--	--	--		44	43	--	.9	--	--	57	--	--
May 21,	--	62	3	7.7	179	--	--	.08	--	21	7.2	--		76	--	4	--	5.5	--	82	20	--
June 29,	--	79	3	7.6	204	--	--	.13	--	22	7.9	--		86	--	5	--	5.9	--	87	17	--
July 14,	157	74	1	6.5	153	14	--	--	--	--	--	--		59	21	2.0	--	5.0	--	66	--	--
July 21,	47.4	73	12	7.4	237	10	--	.07	--	28	10	5.1		112	18	5.0	.2	4.8	139	111	19	--
July 28,	48.4	76	4	7.4	242	6.0	--	--	--	--	--	--		68	15	6.0	.0	--	--	168	--	--
Sept. 10,	--	68	11	6.9	191	--	--	.18	--	20	8.1	--		82	17	--	--	4.2	--	83	16	--
Sept. 15,	38.8	64	4	7.3	240	11	--	--	--	--	--	--		113	21	6.0	.0	2.3	--	189	--	--
Sept. 22,	35.2	60	6	7.5	255	9.9	--	.45	.00	30	11	10		136	16	8.0	.0	3.0	188	120	8	--
Sept. 29,	32.0	59	5	6.5	197	6.8	--	--	--	--	--	--		122	19	6.0	.0	2.8	--	159	--	--
Oct. 15,	--	--	3	7.4	236	--	--	.07	--	26	9.8	6.3		111	16	5.6	--	4.2	--	105	14	--
Nov. 19,	--	--	6	7.2	217	12	--	.05	--	25	8.5	5.6		102	17	--	.2	4.2	131	97	14	--
Dec. 21,	--	--	6	7.3	206	12	--	.06	--	23	7.5	8.8		80	23	--	.2	6.0	130	88	23	--
Jan. 25, 1949	--	45	8	7.7	178	--	--	.06	--	20	7.0	3.3		62	23	4	--	6.8	--	79	28	--
Mar. 3,	--	38	6	7.9	193	13	--	.06	--	22	7.1	7.6		76	24	4	.2	8.8	139	84	22	--
Apr. 13,	--	--	4	7.7	192	14	--	.01	--	21	--	--		84	14	5	--	5.8	--	92	23	--
May 18,	--	72	10	8.0	189	--	--	.06	--	20	8.1	5.1		86	14	4	--	4.6	--	83	13	--
June 24,	--	81	8	--	214	--	--	.05	--	24	9.2	5.4		106	13	4	--	4.3	--	98	11	--
July 29,	--	80	10	7.7	202	--	--	.06	--	22	8.6	4.7		90	17	5	--	2.5	--	90	16	--
Sept. 2,	--	73	8	7.9	237	--	--	--	--	--	--	--		110	17	5.5	--	2.1	--	100	10	--
PIGEON CREEK AT PARKER FORD																						
July 14, 1949	14	69	21	6.8	134	9.3	--	.07	--	12	4.0	6.9	--	26	24	4.5	.1	6.6	96	46	25	--
FRENCH CREEK AT KNAUERTOWN																						
July 14, 1949	28	69	21	6.8	77.7	9.7	--	.12	--	7.3	2.6	9.7	--	25	12	2.4	.1	1.8	61	29	8.	--
FRENCH CREEK AT PHOENIXVILLE																						
Sept. 10, 1947	22	75	9	6.9	147	15	--	--	--	16	4.2	9.5		54	19	5.9	.2	6.6	100	57	13	--
July 14, 1949	94	68	20	6.5	95.1	8.4	--	.17	--	8.8	2.8	11	--	24	15	3.8	.1	3.9	75	33	14	--
SOUTH BRANCH FRENCH CREEK NEAR COVENTRYVILLE																						
July 14, 1949	26	68	26	6.5	105	10	--	.27	--	9.6	3.3	11	--	28	16	3.8	.1	4.2	82	38	15	--

Chemical analyses, in parts per million

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhoe at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Noncarbonate	Total acidity as H_2SO_4
PICKERING CREEK NEAR PHOENIXVILLE																						
Sept. 10, 1947	4.4	77	7	7.1	127	14	--	--	.00	14	4.0	6.9		52	17	4.0	.1	.5	87	51	9	--
PICKERING CREEK NEAR PERKIOMEN JUNCTION																						
July 15, 1949	16	84	16	7.1	130	5.5	--	.13	--	13	4.0	6.5		49	16	4.1	.1	1.1	88	49	8.	--
PERKIOMEN CREEK NEAR GREENLANE																						
Sept. 10, 1947	24	79	7	8.3	183	13	--	--	--	21	6.9	7.9		[a]88	18	4.0	.1	2.5	116	81	9	--
NORTHWEST BRANCH PERKIOMEN CREEK NEAR GREENLANE																						
July. 13, 1948	--	83	4	7.4	171	--	--	.04	--	19	7.0	5.0		75	17	4	--	2.8	--	76	15	--
Apr. 6, 1949	100	49	16	7.1	127	13	--	.15	--	13	4.4	5.2		38	21	4	.1	3.8	86	51	19	--
PERKIOMEN CREEK AT GRATERS FORD																						
Sept. 10, 1947	57	--	11	7.7	209	12	--	--	.00	22	7.9	8.9		86	26	6.4	.2	2.2	131	87	17	--
Oct. 4,,1948	54	62	10	8.2	215	6.0	--	.17	--	23	8.8	11	--	94	25	10	.0	1.3	134	94	16	--
Oct. 21,	48	52	10	8.2	228	8.9	--	.12	--	25	7.5	12	--	100	24	8.0	.0	1.2	134	93	11	--
Apr. 21, 1949	398	58	10	7.6	147	4.8	--	.03	--	14	6.0	8.9		50	29	4.0	.0	2.7	97	60	19	--
May 12,	197	61	10	7.7	180	5.6	--	.07	--	18	7.1	8.6		66	32	2.0	.0	3.5	117	74	20	--
May 23,	848	63	30	6.9	146	13	--	.16	--	15	6.0	7.9		62	22	2.0	.0	3.5	103	63	12	--
June 9,	60	76	10	8.2	190	--	--	.09	--	20	8.1	12		92	26	4.0	.0	.6	109	83	8	--
June 22,	51	84	10	7.5	203	16	--	.03	--	21	8.0	7.9	--	88	24	7.0	.0	2.2	132	85	13	--
July 15,	125	82	5	6.9	179	14	--	.04	--	17	6.4	4.4		43	29	6.0	.1	5.1	116	69	33	--
July 28,	--	79	60	7.2	132	13	--	.36	--	13	6.2	7.8	--	49	27	5.0	.0	5.4	132	58	18	--
July 29,	158	82	5	6.5	176	14	--	.02	--	18	6.5	6.3		52	31	5.5	.1	3.2	116	72	39	--
Aug. 11,	52	80	15	7.7	202	10	--	.02	--	21	8.4	5.1	--	78	29	5.0	.0	1.4	124	87	23	--
Aug. 16,	--	74	20	8.0	228	8.8	--	.10	--	25	8.3	8.1	--	94	28	7.0	.0	1.1	140	97	20	--
Aug. 24,	27	82	10	7.6	230	10	--	.03	--	25	8.0	12	--	92	32	8.0	.0	2.4	144	95	20	--
Sept. 8,	105	74	20	7.3	174	11	--	.13	--	17	7.1	5.7	--	58	27	4.0	.0	4.7	115	72	24	--
Sept. 20,	--	68	25	7.5	214	8.6	--	.07	--	21	8.2	8.0	--	80	29	7.0	.0	1.5	130	86	21	--
Sept. 22,	45	69	5	7.5	230	8.7	--	.04	--	23	9.0	8.5	--	86	32	6.0	.0	1.4	146	94	24	--

[a]Includee equivalent of 6 parts per million of carbonate (CO_3).

APRIL 1952
OMMERCE
APHS

MISCELLANEOUS ANALYSES OF STREAMS IN DELAWARE RIVER BASIN--Continued

Chemical enelyses, in parts per million

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ce)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Noncarbonate	Total acidity as H_2SO_4
PERKIOMEN CREEK AT RAHNS																						
Nov. 4, 1946	69	63	10	7.6	230	--	--	--	--	--	--	--	--	91	25	9	--	.7	--	104	39	--
Jan. 9, 1947	150	33	13	7.4	214	--	--	--	--	--	--	--	--	60	35	7	--	6.7	--	95	46	--
Feb. 14,	175	35	7	7.6	195	--	--	.10	--	21	8.0	5.1		60	32	6	--	6.8	--	85	36	--
Mar. 19,	281	38	8	7.5	158	--	--	.17	--	17	6.6	1.7		38	29	4.5	--	6.9	--	70	38	--
Apr. 25,	206	54	12	7.6	167	--	--	.16	--	17	6.7	5.0		54	26	5.5	--	2.3	--	70	26	--
May 31,	294	71	12	7.3	163	--	--	.10	--	18	6.2	4.9		56	26	4	--	3.1	--	70	25	--
July 5,	70	73	7	7.9	191	--	--	.12	--	22	7.8	4.3		76	22	7.5	--	.5	--	87	25	--
Aug. 11,	61	80	7	7.6	220	--	--	.06	--	23	8.9	7.2		88	25	8	--	.4	--	94	22	--
Sept. 16,	198	74	12	--	208	--	--	--	--	21	9.2	9.9		82	33	.6	--	2.1	--	90	23	--
Oct. 20,	---	68	6	7.5	262	--	--	.06	--	28	9.6	11		110	27	10	--	--	--	109	19	--
Nov. 25,	---	43	26	7.3	181	--	--	.15	--	18	6.7	4.9		39	36	5	--	8.2	--	72	40	--
Dec. 30,	---	33	5	7.8	231	--	--	.03	--	24	11	3.1		66	37	9.0	--	8.2	--	105	51	--
Feb. 2, 1948	---	32	4	7.4	225	--	--	.08	--	24	10	7.5		75	36	8	--	8.6	--	101	40	--
Mar. 10,	---	41	8	7.1	161	--	--	.12	--	16	6.5	2.9		34	29	6	--	8.0	--	67	39	--
Apr. 15,	---	48	--	7.6	137	--	--	.12	--	--	--	--		29	29	2	--	3.2	--	50	26	--
PERKIOMEN CREEK AT COLLEGEVILLE																						
Apr. 6, 1949	---	49	20	7.1	165	11	--	.22	--	16	7.8	3.8		42	33	6	--	3.7	--	72	38	--
PERKIOMEN CREEK AT OAKS																						
Apr. 14, 1948	2,620	46	1	7.1	169	12	--	--	--	--	--	--		39	33	--	--	--	--	52	--	--
Apr. 21,	388	--	8	7.2	168	9.4	--	.11	--	16	6.1	6.5		42	31	6.0	.0	5.4	105	65	31	--
May 5,	2,770	54	1	6.7	120	8.0	--	--	--	--	--	--		32	51	--	.0	--	--	46	--	--
July 14,	238	79	15	6.8	207	11	--	--	--	--	--	--		75	32	5.0	.2	3.8	--	90	--	--
July 21,	93.3	80	15	7.6	211	12	--	.04	--	20	7.5	11		76	28	7.5	.2	2.0	132	81	18	--
July 28,	115	--	6	7.5	196	12	--	--	--	--	--	--		54	29	9.0	.0	--	--	98	--	--
Sept. 15,	79.4	69	10	7.4	217	10	--	--	--	--	--	--		74	29	10	.0	1.4	--	134	--	--
Sept. 22,	50.3	76	10	7.4	241	8.0	--	.20	.0	26	11	6.2		92	30	12	.0	.6	174	111	34	--
Sept. 29,	43.6	65	20	6.3	203	3.0	--	--	--	--	--	--		100	22	12	.0	.6	--	134	--	--
MACOBY CREEK AT GREENLANE																						
July 13, 1948	---	81	8	7.1	208	--	--	--	--	--	--	--		86	27	4	--	1.5	--	--	--	--
Apr. 6, 1949	67	48	30	7.1	133	10	--	.08	--	12	5.6	5.7		32	33	2	--	2.6	--	53	27	--

PVP 712.1 7/6
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MISCELLANEOUS ANALYSIS OF STREAMS IN DELAWARE RIVER BASIN--Continued

Chemical analyses, in parts per million

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Noncarbonate	Total acidity as H_2SO_4
UNAMI CREEK NEAR SUMNEYTOWN																						
July 13, 1948	--	81	6	7.1	193	--	--	.04	--	22	8.1	4.6		87	18	5	--	1.5	--	88	17	--
Apr. 6, 1949	175	49	12	7.4	149	15	--	.15	--	15	6.9	7.4		56	30	2	--	2.4	--	66	20	--
WEST SWAMP CREEK AT LAYFIELD																						
July 13, 1948	--	78	4	6.9	232	16	--	--	--	--	--	--		80	19	8	--	6.1	--	84	~~18~~	--
Apr. 6, 1949	120	51	42	7.0	154	12	--	.08	--	16	5.9	5.4		42	31	3	--	6.1	--	64	30	--
WEST SWAMP CREEK NEAR DELPHI																						
July 13, 1948	--	82	7	7.3	222	14	--	.03	--	22	7.4	9.5		80	28	6.6	.1	2.3	142	85	20	--
Apr. 6, 1949	245	48	50	6.7	158	9.6	--	.05	--	15	5.6	6.7		41	31	4	.1	4.1	109	60	27	--
NORTHEAST BRANCH PERKIOMEN CREEK NEAR BERGEY																						
July 12, 1948	--	82	5	6.8	264	--	--	.06	--	24	10	12		77	47	10	--	1.5	--	101	38	--
Apr. 6, 1949	274	49	10	7.2	182	7.2	--	.07	--	15	6.9	7.7		33	41	6	.1	5.0	117	66	39	--
NORTHEAST BRANCH PERKIOMEN CREEK NEAR SCHWENKVILLE																						
July 13, 1948	--	76	5	7.7	255	3.8	--	.03	--	23	9.3	14		81	43	9.6	.0	1.0	152	96	29	--
Apr. 6, 1949	300	50	10	7.2	189	7.9	--	.02	--	24	7.8	--		44	43	6	--	5.5	--	92	56	--
INDIAN CREEK NEAR VERNFIELD																						
Apr. 6, 1949	~~15~~	49	13	7.4	280	9.0	--	.05	--	23	12	13		66	49	15	--	12	--	107	53	--
SKIPPACK CREEK AT MAINLAND																						
July 12, 1948	--	85	4	7.1	343	--	--	.08	--	27	11	22		94	46	23	--	5.1	--	113	36	--
Apr. 6, 1949	28	49	33	7.6	250	7.9	--	.08	--	20	9.5	8.7		46	42	18	--	1.4	--	89	51	--
SKIPPACK CREEK NEAR COLLEGEVILLE																						
Sept. 10, 1947	5.4	78	9	7.4	269	5.4	--	--	.00	22	8.6	21		95	28	19	.3	1.2	158	90	13	--
Apr. 6, 1949	--	50	15	7.0	205	8.5	--	.46	--	18	8.1	8.0		38	41	11	--	7.6	--	78	47	--
VALLEY CREEK AT VALLEY FORGE																						
July 21, 1948	--	66	2	7.7	349	--	--	--	--	--	--	--		188	9.5	5	--	1.6	--	178	24	--
Apr. 7, 1949	51	52	8	7.9	328	8.6	--	.08	--	39	17	--		154	24	7	--	8.0	--	167	41	--

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MISCELLANEOUS ANALYSES OF STREAMS IN DELAWARE RIVER BASIN--Continued

Chemical analyses, in parts per million

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chlorids (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Noncarbonate	Total acidity as H_2SO_4
TROUT CREEK NEAR PORT KENNEDY																						
July 21, 1948	--	68	4	7.4	305	--	--	.12	--	34	17	--		160	13	4	--	7.7	--	155	24	--
Apr. 7, 1949	12	52	8	7.8	276	11	--	.05	--	34	15	--		144	16	4	--	9.7	--	147	28	--
ABRAM RUN NEAR BRIDGEPORT																						
July 21, 1948	--	72	3	7.0	118	--	--	.04	--	11	5.0	--		43	9.7	--	--	5.6	--	48	13	--
Apr. 7, 1949	4	50	8	6.6	123	11	--	.23	--	12	5.5	4.4		32	22	5	--	7.5	--	53	26	--
STONY CREEK AT NORRISTOWN																						
July 13, 1948	--	80	3	7.2	295	--	--	--	--	--	--	--		84	34	15	--	1.8	--	100	31	--
Apr. 6, 1949	50	50	20	7.0	215	10	--	.05	--	18	9.2	7.9		42	43	11	--	6.5	--	83	48	--
PLYMOUTH CREEK AT CONSHOHOCKEN																						
July 13, 1948	--	92	2	7.6	513	10	--	--	--	--	--	--		210	68	8	--	2.8	--	--	--	--
Apr. 6, 1949	16	64	5	7.9	409	11	--	.08	--	38	22	13		166	56	8.0	--	8.7	--	185	49	--
GULPH CREEK NEAR WEST CONSHOHOCKEN																						
July 21, 1948	--	72	26	6.5	357	--	--	.08	--	50	7.0	3.2		69	34	48	--	1.0	--	154	47	--
Apr. 7, 1949	14	50	10	7.0	179	10	--	.15	--	10	7.5	15		50	32	7	--	6.4	--	56	14	--
MILL CREEK NEAR GLADWYNE																						
July 21, 1948	--	66	3	6.9	188	--	--	.05	--	16	8.4	6.0		47	30	10	--	4.6	--	74	36	--
Apr. 7, 1949	18	48	5	7.5	184	14	--	.08	--	16	6.3	12		40	37	9	--	9.4	--	66	33	--
WISSAHICKON CREEK AT WHITEMARSH																						
July 13, 1948	--	73	3	7.3	328	12	--	--	--	--	--	--		132	23	10	--	--	--	131	23	--
Apr. 6, 1949	180	48	18	7.2	188	9.5	--	.10	--	17	8.5	7.3		50	37	6	--	6.7	--	77	36	--
WISSAHICKON CREEK NEAR FORT WASHINGTON																						
July 13, 1948	--	73	5	7.0	342	--	--	.05	--	28	15	19		118	47	12	--	13	--	132	35	--
Apr. 6, 1949	129	49	15	7.0	198	10	--	.12	--	18	9.5	6.3		50	40	7	--	6.4	--	84	43	--

Chemical analyses, in parts per million

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$		Total acidity as H_2SO_4
																				Total	Non-carbonate	
WISSAHICKON CREEK AT PHILADELPHIA																						
Sept. 10, 1947	28	75	4	7.4	362	7.4	—	--	.00	30	20	15		154	37	13	.1	7.2	209	158	31	--
Apr. 15, 1948	216	48	1	7.1	256	9.0	—	--	--	--	--	--		77	37	—	--	--	--	88	--	--
Apr. 22,	89.1	55	7	7.2	279	6.6	—	.11	--	24	13	12		93	39	12	.0	7.2	169	113	37	--
May 6,	203	53	1	6.9	177	11	--	--	--	--	—	--		46	31	—	.0	--	--	68	—	--
July 15,	1,100	70	1	6.4	134	8.0	--	--	--	--	--	--		42	26	4.0	.0	1.6	--	58	--	--
July 21,	72.1	71	13	7.5	310	11	—	.06	--	27	14	14		113	37	12	.1	8.2	184	125	32	—
July 28,	100	75	30	7.2	187	12	--	—	--	--	--	--		56	39	8.0	.0	—	--	122	--	--
Sept. 15,	36.6	66	6	7.4	314	8.0	--	—	--	--	--	--		127	35	12	.0	4.8	--	207	—	--
Sept. 22,	33.3	64	5	7.6	366	6.1	—	.33	.15	40	22	4.9		160	43	14	.0	7.6	244	191	60	—
Sept. 29,	30.1	62	6	6.8	328	4.9	--	—	--	--	--	--		148	33	16	.0	7.7	--	219	--	--
Apr. 6, 1949	—	50	8	7.5	199	10	--	.24	--	25	13	4.0		82	37	9	--	7.6	--	116	48	--
SANDY RUN AT FORT WASHINGTON																						
July 13, 1948	—	67	4	7.2	328	—	--	.08	--	31	18	7.2		153	23	8	--	7.8	--	151	26	--
Apr. 6, 1949	49	48	40	7.1	182	6.9	--	.08	—	16	8.8	7.4		46	30	5	--	20	--	76	38	--

APRIL 1952
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GRAPHS

MISCELLANEOUS ANALYSES OF STREAMS IN DELAWARE RIVER BASIN--Continued

Chemical analyses, in parts per million

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Non-carbonate	Total acidity as H_2SO_4
DARBY CREEK NEAR ITHAN, (Goshon Road)																						
Apr. 21, 1949	20	61	6	7.2	135	14	--	.05	--	12	4.7	8.3	--	44	19	6.2	0.1	7.0	94	49	13	--
DARBY CREEK NEAR CLIFTON HEIGHTS (U. S. Highway 1)																						
Apr. 2, 1948	--	56	10	7.0	177	--	--	.22	--	14	6.9	6.6		35	32	7	--	7.3	--	63	35	--
DARBY CREEK AT DARBY																						
Apr. 2, 1948	--	54	13	7.5	209	--	--	.27	--	15	7.5	10		38	31	16	--	5.9	--	68	37	--
Apr. 21, 1949	47	51	7	6.7	161	15	--	.04	--	14	5.0	10	--	36	24	8.5	.2	6.0	111	56	26	--
DARBY CREEK NEAR PROSPECT PARK																						
Apr. 21, 1949	--	55	16	6.8	188	7.3	--	.04	--	17	5.7	8.2	--	34	39	8.6	.3	9.4	120	66	38	--
ITHAN CREEK NEAR ITHAN (Old Derby Road)																						
Apr. 21, 1949	9	61	5	7.1	174	20	--	.03	--	17	6.1	6.3	--	44	28	7.5	.1	7.9	117	68	31	--
COBBS CREEK AT WEST OVERBROOK (Township Line)																						
Apr. 21, 1949	6	62	5	7.2	207	12	--	.04	--	20	7.6	8.4	--	49	32	10	.1	12	133	81	41	--
COBBS CREEK NEAR LANSDOWNE (U. S. Highway 1)																						
Apr. 2, 1948	--	56	18	7.5	285	--	--	.74	--	30	11	5.6		64	54	11	--	10	--	120	68	--
COBBS CREEK NEAR DARBY (Woodland Avenue)																						
Apr. 21, 1949	18	54	16	6.5	335	16	--	.04	--	28	8.1	12	--	61	49	27	.5	22	220	103	53	--
CRUM CREEK NEAR NEWTON SQUARE																						
Apr. 21, 1949	14	60	8	6.9	91.6	14	--	.03	--	7.3	4.2	4.2		28	11	4	.1	5.4	68	35	12	--
CRUM CREEK AT SPRINGTON RESERVOIR NEAR MEDIA																						
Apr. 21, 1949	32	55	6	7.1	102	13	--	.05	--	8.0	4.3	9.0	--	28	15	4.5	.1	5.4	70	38	15	--
CRUM CREEK NEAR MEDIA (U. S. Highway 1)																						
Apr. 2, 1948	--	51	7	7.4	105	--	--	.21	--	8.0	5.9	2.9		27	18	5	--	3.3	--	44	22	--

P.P.P.712, 1/9
I no. 241

MISCELLANEOUS ANALYSES OF STREAMS IN DELAWARE RIVER BASIN--Continued

Chemical analyses, in parts per million

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhoe at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$		Total acidity as H_2SO_4
																				Total	Non-carbonate	
CRUM CREEK AT EDDYSTONE (U. S. Highway 13)																						
Apr. 21, 1949	41	56	6	6.9	117	11	--	.05	--	8.9	4.6	7.2	--	25	21	5.2	0.2	6.0	76	41	21	--
RIDLEY CREEK NEAR WILLISTOWN																						
July 15, 1949	9	73	17	6.6	113	9.7	--	.14	--	8.7	5.5	5.6		32	13	5.2	.1	4.6	78	44	18	--
RIDLEY CREEK NEAR GRADYVILLE																						
Apr. 21, 1949	31	62	5	7.2	96.7	14	--	.05	--	7.2	4.1	5.7		29	13	3.8	.1	5.2	71	35	11	--
RIDLEY CREEK NEAR MEDIA (U. S. Highway 1)																						
Apr. 2, 1948	--	54	28	7.5	112	--	--	.58	--	8.4	6.3	1.3		24	19	5	--	4.0	--	47	27	--
RIDLEY CREEK AT CHESTER (17th Street)																						
Apr. 21, 1949	78	55	7	7.1	121	16	--	.05	--	9.3	4.7	9.1	--	30	18	5.9	.2	7.5	83	43	18	--
CHESTER CREEK NEAR WESTTOWN																						
July 15, 1949	15	71	13	6.8	179	7.8	--	.06	--	14	5.3	13	--	49	19	11	.1	8.9	117	57	17	--
CHESTER CREEK NEAR CHEYNEY																						
Apr. 21, 1949	28	65	8	7.3	147	16	--	.02	--	12	4.8	7.7	--	35	18	7.6	.1	10	101	50	21	--
CHESTER CREEK AT WAWA (U. S. Highway 1)																						
Apr. 2, 1948	--	55	12	7.6	147	--	--	.27	--	13	6.2	3.6		30	25	7	--	6.5	--	58	33	--
CHESTER CREEK AT LENNI MILLS																						
Apr. 21, 1949	52	60	10	7.2	145	15	--	.02	--	12	4.9	7.2		36	19	6.6	.1	8.6	100	50	21	--
CHESTER CREEK AT CHESTER (Kirlin Street)																						
Apr. 21, 1949	108	57	7	7.3	138	15	--	.05	--	11	4.7	8.4	--	33	20	7.1	.2	8.3	94	47	20	--

APRIL 1952
COMMERCE
GRAPHS

MISCELLANEOUS ANALYSES OF STREAMS IN DELAWARE RIVER BASIN--Continued

Chemical anelysee, in parte per million

Date of collection	Mean dis-charge (second-feet)	Tem-pera-ture (°F.)	Color	pH	Specific conduct-ance (Micromhos at 25°C.)	Silica (SiO_2)	Alum-inum (Al)	Iron (Fe)	Man-ganese (Mn)	Cal-cium (Ce)	Mag-ne-sium (Mg)	So-dium (Na)	Po-tee-sium (K)	Bicar-bonate (HCO_3)	Sul-fate (SO_4)	Chlo-ride (Cl)	Fluo-ride (F)	Ni-trate (NO_3)	Die-solved eolide	Hardneee as $CaCO_3$		Total acid-ity as H_2SO_4
																				Total	Non-carbon-ate	
CHESTER CREEK AT CHESTER (U. S. Highway 13)																						
Apr. 2, 1948-------	--	54	28	7.5	135	--	--	.49	—	12	6.1	1.6		25	24	6	--	5.6	--	55	35	--
WEST BRANCH CHESTER CREEK NEAR LENNI MILLS																						
Apr. 21, 1949------	27	57	8	6.7	117	13	--	.03	--	9.6	4.0	5.9		30	14	5.4	.1	7.7	79	40	16	--
MARCUS HOOK CREEK AT TRAINER (Ridge Road)																						
Apr. 21, 1949------	4		8	6.8	218	16	--	.08	--	15	8.7	15		37	54	10	.2	5.1	159	73	43	--
NAAMAN CREEK NEAR MARCUS HOOK (Pennsylvania-Delaware state line)																						
Apr. 21, 1949------	20	65	10	6.8	129	15	--	.04	--	10	4.4	7.8		30	20	6.8	.1	5.8	90	43	18	—
WEST BRANCH BRANDYWINE CREEK AT CEDAR KNOLL																						
July 14, 1949------	45	74	30	6.3	98.7	7.5	--	.14	--	8.5	3.5	3.8	--	20	17	4.0	.1	6.3	73	36	19	--
WEST BRANCH BRANDYWINE CREEK AT COATESVILLE																						
Sept. 5, 1944------	6.8	76	8	7.4	108	12	--	.02	--	10	3.9	4.7		43	9.5	3.8	.0	1.0	66	41	6	--
May 9, 1945--------	63.6	55	15	7.2	99.7	11	--	.02	--	8.8	3.8	4.4		31	13	3.8	.1	3.2	67	38	12	--
July 31, 1946------	--		12	6.0	102	—	—	.10	--	--	--	--		31	19	5.0	--	3.2	--	45	—	—
Sept. 7, 1949------	—	69	7	6.9	119	14	--	.02	--	.11	4.5	3.7	2.3	44	10	7.2	.1	1.9	79	46	10	—
WEST BRANCH BRANDYWINE CREEK AT MORTONVILLE																						
July 14, 1949------	47	80	10	6.6	173	9.2	--	.03	--	15	5.3	17		41	40	7.2	.1	8.3	131	59	26	--
WEST BRANCH BRANDYWINE CREEK NEAR WAWASET																						
July 15, 1949------	123	78	10	6.8	146	9.1	—	.01	—	13	4.8	8.1	--	41	20	6.2	.1	9.1	103	52	19	--
BRANDYWINE CREEK AT CHADDS FORD																						
Jan. 14, 1948------	506	—	18	7.1	136	11	--	.37	--	15	4.4	2.9		37	18	5.0	.2	6.5	87	56	--	--
Feb. 19,----------	1440	40	8	6.7	96.4	6.6	--	.04	--	8.0	3.3	5.1		22	15	3.1	.2	7.5	61	34	--	—
Mar. 10,----------	655	44	4	7.0	135	10	--	.08	--	12	4.6	5.9		34	19	5.0	.2	7.9	83	49	--	—
Apr. 13,----------	590	--	8	7.4	123	8.8	—	.06	--	12	4.2	3.7		34	16	4.2	.1	5.8	82	47	--	—
May 11,----------	569	--	3	7.0	132	12	--	.04	--	12	4.5	5.7		37	18	4.8	.1	5.9	91	48	--	—
June 7.----------	485	—	3	6.9	131	14	--	.04	--	12	4.5	5.4		38	16	5.2	.2	5.5	87	48	--	--

Chemical analyses, in parts per million

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhoe at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Noncarbonate	Total acidity as H_2SO_4
BRANDYWINE CREEK AT CHADDS FORD--Continued																						
June 24,	477	—	6	6.9	149	14	--	.09	--	13	4.8	6.4		43	17	5.6	.1	6.3	103	52	--	—
July 28,	427	--	5	6.6	136	13	--	.05	--	13	5.4	5.5		44	16	5.9	.0	6.8	94	55	--	--
Aug. 20,	489	70	6	6.7	146	12	--	.06	--	14	5.3	6.5		46	18	5.9	.0	7.7	100	57	--	--
Sept. 24,	226	--	6	6.7	242	18	--	.10	--	26	9.0	8.2		83	26	7.6	.1	17	168	102	--	--
Oct. 18,	250	--	6	6.5	149	13	--	.10	--	13	4.9	8.6		46	19	6.5	.1	5.6	99	53	--	--
Dec. 1,	415	--	6	8.0	142	13	--	.06	--	13	4.8	7.6		41	21	6.0	.1	5.7	98	52	--	--
Dec. 27,	260	--	6	6.7	163	14	--	.12	--	16	5.6	3.2		36	19	6.2	.2	14	105	63	--	--
Jan. 31, 1949	925	34	6	7.2	127	12	--	.04	--	11	4.5	6.6		32	19	4.5	.2	9.2	88	46	--	--
Mar. 3,	760	46	6	7.7	134	13	--	.03	--	12	4.6	7.2		37	18	5.2	.2	9.4	90	49	--	--
Apr. 12,	467	--	5	7.3	133	12	--	.06	—	12	4.6	7.0		40	17	4.6	.1	8.5	87	49	--	--
Apr. 21,	495	57	8	7.3	127	10	--	.02	--	11	4.4	8.4		42	17	4.4	.1	6.6	86	46	--	—
May 19,	315	—	8	6.6	145	13	—	.02	--	13	4.5	8.0		46	16	5.8	.1	6.8	95	51	13	--
June 6,	260	—	10	7.4	175	9.3	--	.05	--	14	5.5	10		62	17	5.5	.2	4.2	103	58	7	--
July 15,	281	75	12	6.8	138	9.8	--	.02	--	12	4.7	6.8	--	40	22	5.2	.1	6.1	102	49	16	--
July 25,	183	80	10	7.8	166	7.5	--	—	--	--	--	--		56	19	8.0	.1	5.5	--	--	--	--
Sept. 7,	114	70	10	7.3	173	7.8	--	.16	--	16	6.0	10		65	17	8.0	.1	4.9	103	65	11	--
BRANDYWINE CREEK AT WILMINGTON, DEL.																						
Nov. 22, 1946	—	44	5	6.9	164	—	—	.03	--	15	5.5	9.0		52	19	8.4	--	6.6	98	60	--	--
Dec. 6,	185	35	5	7.0	173	--	--	.02	--	15	5.6	8.3		52	19	7.4	--	7.1	104	60	--	--
Jan. 1, 1947	252	38	5	7.4	144	--	--	.02	--	13	5.0	6.8		42	19	5.5	--	7.1	86	53	--	--
Feb. 2,	350	42	5	6.8	143	--	--	.02	--	13	4.9	6.9		42	18	6.5	--	6.6	86	53	--	--
Mar. 3,	444	33	6	7.1	141	--	--	.29	--	13	4.9	6.4		42	18	5.8	--	6.3	85	53	--	--
Apr. 1,	344	47	3	7.3	140	--	--	.11	—	14	5.1	4.9		43	16	6.8	--	6.4	84	56	--	--
May 1,	1620	59	28	7.4	97.5	--	--	.29	—	8.6	3.2	5.1		21	17	4.5	--	5.6	58	35	--	--
June 2,	350	67	5	6.9	133	--	--	.14	--	13	4.9	5.6		44	14	6.8	--	5.7	80	53	--	--
July 1,	252	—	7	7.2	148	--	--	.17	--	14	5.1	8.1		49	18	7.0	--	6.0	89	56	--	--
Sept. 2,	246	76	5	7.9	150	10	--	.07	--	14	4.8	7.4		47	17	6.8	.2	5.4	92	55	--	--
Oct. 2,	141	54	5	8.1	168	8.8	--	.08	--	15	5.5	9.8		58	18	7.5	.1	5.1	99	60	--	--
Nov. 30,	238	—	5	8.2	187	13	—	.09	--	16	5.6	13		58	25	9.2	.2	4.2	114	63	--	--
Dec. 4,	239	38	4	7.4	162	12	--	.06	—	15	5.5	6.9		46	21	6.8	.1	7.0	102	60		—
Jan. 2, 1948	2900	—	18	6.4	91.6	5.5	--	.20	--	7.6	2.7	4.7		14	18	3.0	.2	6.6	52	30	--	—
Feb. 3,	246	32	3	7.4	150	12	--	.04	--	13	5.0	7.8		40	20	6.0	.1	9.4	98	53	--	--
Mar. 3,	—	—	--	--	122	--	--	--	--	--	--	--		28	25	--	--	--	--	56	--	--
Mar. 3,	—	--	—	--	307	--	--	--	--	--	--	--		67	40	--	--	--	—	108	—	--
Mar. 4,	994	38	6	7.6	123	11	--	.06	--	13	4.5	1.5		28	19	4.9	.2	5.0	84	51	--	--
Apr. 2,	1180	55	16	7.2	113	10	--	.16	--	11	3.7	3.9		27	18	3.5	.1	6.4	79	43	--	--
May 2,	460	61	4	7.3	135	8.8	--	.06	--	12	4.6	5.8		40	16	5.5	.0	5.2	90	49	--	--

PYP 712.1716
Inc. 24,1
APRIL 1952
OMMERCE
APHS

MISCELLANEOUS ANALYSES OF STREAMS IN DELAWARE RIVER BASIN--Continued

Chemical analyses, in parts per million

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Noncarbonate	Total acidity as H_2SO_4
BRANDYWINE CREEK AT WILMINGTON, DEL.—Continued																						
June 2, 1948	634	67	10	6.6	130	13	--	.08	--	12	4.5	4.9		37	17	4.5	.1	5.6	88	48	--	--
July 1,	1020	--	35	7.1	142	14	--	.54	--	13	5.0	5.1		42	18	4.5	.2	4.9	107	53	--	--
Aug. 2,	554	73	6	6.8	137	12	--	.14	--	13	5.4	6.1		46	16	5.3	.0	7.5	96	55	--	--
Sept. 1,	240	--	6	6.7	155	10	--	.10	--	15	6.0	6.2		53	17	6.1	.0	7.3	106	62	--	--
Oct. 6,	444	55	5	6.9	153	11	--	.17	--	15	6.0	6.1		52	17	6.3	.0	7.7	104	62	--	--
Nov. 1,	226	--	6	6.8	165	11	--	.04	--	15	5.1	9.3		51	20	7.8	.1	5.8	103	58	--	--
Dec. 1,	492	--	15	6.5	138	12	--	.07	--	13	4.6	8.1		42	21	5.6	.1	5.7	94	51	--	--
Jan. 3, 1949	890	--	11	6.9	134	12	--	.13	--	12	4.5	5.9		36	19	5.2	.1	5.5	90	48	--	--
Feb. 2,	986	38	7	7.3	132	13	--	.02	--	12	4.6	6.2		34	18	5.0	.2	10	86	49	--	--
Mar. 2,	962	38	6	7.2	128	13	--	.02	--	10	4.3	8.0		33	17	4.8	.2	10	87	43	--	--
Apr. 3,	719	50	8	6.9	124	13	--	.03	--	11	4.3	7.0		36	17	4.6	.2	7.5	87	45	--	--
May 2,	580	63	7	6.9	135	9.4	--	.12	--	12	4.6	7.2		42	16	5.8	.2	5.7	85	49	--	--
May 31,	425	61	7	6.7	141	13	--	.03	--	13	4.5	7.2		45	15	6.1	.2	6.2	93	51	14	--
July 1,	200	72	11	7.9	162	9.4	--	--	--	--	--	--		54	19	8.5	.1	5.2	--	--	--	--
July 15,	379	76	12	6.7	131	9.3	--	.03	--	12	4.4	5.3	--	35	20	4.2	.0	6.0	96	48	19	--
Aug. 17,	124	76	7	7.3	173	6.9	--	.03	--	15	5.7	8.1		58	19	5.0	.1	4.9	95	61	13	--
DOE RUN CREEK NEAR DOE RUN																						
July 14, 1949	26	77	8	6.6	98.7	8.7	--	.02	--	8.8	3.6	3.8	--	34	7.9	4.1	.1	8.0	78	37	9	--
BUCK RUN CREEK NEAR DOE RUN																						
July 14, 1949	29	74	15	6.2	117	7.4	--	.09	--	11	3.6	4.5	--	30	14	6.0	.1	9.4	82	42	18	--
EAST BRANCH BRANDYWINE CREEK AT LYNDELL																						
July 14, 1949	37	74	28	6.3	100	13	--	.05	--	9.0	2.8	4.0	1.6	25	13	3.2	.2	4.0	80	34	13	--
EAST BRANCH BRANDYWINE CREEK AT DOWNINGTON																						
Aug. 9, 1946	--	65	8	5.9	155	--	--	.10	--	--	--	--		53	17	5.0	--	4.0	--	54	--	--
EAST BRANCH BRANDYWINE CREEK NEAR SUGARS BRIDGE																						
July 15, 1949	80	79	25	6.4	160	10	--	.08	--	13	4.5	11	--	41	31	5.0	.0	4.1	118	51	17	--
EAST BRANCH BRANDYWINE CREEK NEAR WAWASET																						
July 15, 1949	105	--	18	6.4	112	9.6	--	.02	--	14	5.0	7.6	--	46	24	4.8	.1	5.1	112	56	18	--
MARSH CREEK NEAR LYNDELL																						
July 14, 1949	91	70	55	5.6	78.1	9.1	--	.06	--	6.8	2.4	2.4	1.6	14	18	2.1	.1	2.5	65	27	15	--

PY.P712, 1716
I.no. 241

Chemical analyses, in parts per million

Date of collection	Maan discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductanca (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fa)	Manganesa (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardnese as $CaCO_3$ Total	Hardnese as $CaCO_3$ Non-carbonate	Total acidity as H_2SO_4
BEAVER CREEK AT DOWNINGTOWN																						
July 14, 1949	16	73	12	6.6	208	8.7	—	.02	--	22	7.9	5.7	2.1	76	26	5.5	.1	6.3	134	87	25	--
VALLEY CREEK NEAR SUGARS BRIDGE																						
July 15, 1949	19	77	5	6.8	193	7.2	--	.05	--	20	8.8	4.6	--	89	12	4.6	.0	6.3	124	86	13	--
WEST BRANCH RED CLAY NEAR KENNETT SQUARE																						
July 15, 1949	17	73	8	6.9	179	14	—	.05	--	16	6.8	5.3	3.4	60	16	6.8	.1	12	117	68	19	--
EAST BRANCH RED CLAY NEAR KENNETT SQUARE																						
July 15, 1949	86	75	10	6.9	175	15	--	.04	--	16	6.2	5.8	3.3	58	18	6.5	.2	9.4	113	65	18	--
EAST BRANCH WHITE CLAY CREEK AT LANDENBERG																						
July 15, 1949	24	75	8	7.3	203	13	--	.06	--	21	8.0	8.7	3.3	80	21	6.2	.1	11	134	85	20	—
WEST BRANCH WHITE CLAY CREEK NEAR LANDENBERG																						
July 14, 1949	14	74	14	7.0	100	12	--	.07	--	8.4	3.1	3.2	2.8	31	8.8	4.6	.1	6.7	72	34	8.	--
BIG ELK CREEK NEAR LEWISVILLE																						
July 14, 1949	47	77	16	6.6	85.2	8.2	--	.08	—	6.9	2.4	3.8	2.8	22	10	4.5	.1	5.3	62	27	9	--
LITTLE ELK CREEK NEAR LEWISVILLE																						
July 14, 1949	15	74	18	7.0	119	11	--	.16	--	7.4	6.5	4.1	2.8	39	12	5.1	.2	6.0	83	45	13	--

APRIL 1952
OMMERCE
APHS

MISCELLANEOUS ANALYSES OF STREAMS IN SUSQUEHANNA RIVER BASIN

Chemical enelyses, in parts per million

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$		Total acidity as H_2SO_4
																				Total	Noncarbonate	
SUSQUEHANNA RIVER AT SHICKSHINNY																						
Mar. 20, 1947	22,600	35	16	7.3	122	--	--	.40	--	14	4.1	2.6		27	29	2.5	--	2.1	--	52	30	--
Sept. 16,	3,360	76	7	6.9	332	--	--	--	--	34	13			38	134	5	--	1.4	--	138	107	--
Feb. 28, 1948	17,200	36	10	6.9	151	--	--	.30	--	16	5.2	5.2		30	38	4	--	3.6	--	61	37	--
Nov. 4,	1,580																					
Left Side		56	--	6.8	462	2.8	--	--	--	--	--	--		54	167	14	--	2.8	--	178	134	--
Left Center		56	--	6.8	460	3.6	--	--	--	--	--	--		55	165	14	--	3.0	--	169	124	--
Center		56	--	6.6	459	3.3	--	--	--	--	--	--		53	163	14	--	2.7	--	154	111	--
Right Center		56	--	6.9	457	3.5	--	--	--	--	--	--		51	163	14	--	2.8	--	147	105	--
Right Side		56	--	6.7	342	3.6	--	--	--	--	--	--		41	115	11	--	2.7	--	119	85	--
SUSQUEHANNA RIVER AT MARIETTA																						
Mey 29, 1948	54,300																					
Station 300		66	10	6.8	168	--	--	--	--	--	--	--		26	52	--	--	3.2	--	72	--	--
Stetion 1100		65	15	6.8	143	--	--	--	--	--	--	--		22	44	--	--	2.2	--	66	--	--
Stetion 2100		65	20	6.9	120	--	--	--	--	--	--	--		23	35	--	--	1.9	--	58	--	--
Stetion 3100		66	15	6.8	110	--	--	--	--	--	--	--		22	28	--	--	1.8	--	48	--	--
Stetion 4100		67	15	7.0	122	--	--	--	--	--	--	--		31	30	--	--	1.7	--	57	--	--
Stetion 5100		68	22	7.1	170	--	--	--	--	--	--	--		58	30	--	--	3.1	--	70	--	--
LACKAWANNA RIVER AT FORREST CITY																						
Feb. 27, 1948	--	36	8	6.5	64.2	--	--	.08	--	11	1.9	1.2		18	18	2	--	1.8	--	35	20	--
Nov. 3,	--	47	--	7.0	101	--	--	--	--	--	--	--		26	17	2.5	--	3.2	--	34	13	--
LACKAWANNA RIVER AT CARBONDALE																						
Feb. 27, 1948	--	40	6	4.7	187	--	--	.06	--	20	9.2	2.4		4	80	4	--	.9	--	88	84	--
Nov. 3,	--	49	--	3.85	516	--	--	--	--	--	--	--		--	222	1.0	--	.8	--	174	174	--
LACKAWANNA RIVER AT ARCHBALD																						
Feb. 27, 1948	190	42	4	3.90	286	--	--	.08	--	22	13	8.8		--	117	8	--	.6	--	114	114	--
LACKAWANNA RIVER AT OLD FORGE																						
Nov. 3, 1948	102																					
Left Side		59	--	6.6	811	27	--	--	--	--	--	--		129	321	12	--	.3	--	328	222	--
Center		59	--	6.5	872	20	--	--	--	--	--	--		115	370	14	--	.3	--	350	256	--
Right Side		59	--	6.4	899	18	--	--	--	--	--	--		88	419	12	--	.2	--	410	338	--
LACKAWANNA RIVER AT DUNYEA																						
Mar. 20, 1947	--	39	--	3.6	563	--	--	.46		41	28	--		--	243	4	--	.1	--	--	--	--
Sept. 16,	--	66	--	3.2	1180	--	--	--		92	68	--		--	621	10	--	.2	--	--	--	--

Chemical analysee, in parts per million

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhoe at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganeee (Mn)	Calcium (Ca)	Magneeium (Mg)	Sodium (Na)	Potaeeium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dieeolved eolide	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Noncarbonate	Total acidity as H_2SO_4
TOBY CREEK AT LUZERNE																						
Feb. 28, 1948	104	37	8	6.7	89.1	--	--	.11	--	14	2.1	1.0		16	22	4	--	5.1	--	44	31	--
Nov. 4,	25	55	--	6.9	186	--	--	--	--	--	--	--		41	34	11	--	2.1	--	--	--	--
HARVEY CREEK AT WEST NANTICOKE																						
Feb. 28, 1948	--	36	8	6.7	63.7	--	--	--	--	--	--	--		12	14	1	--	3.2	--	24	14	--
Nov. 4,	--	53	--	7.1	88.4	2.7	--	--	--	--	--	--		24	15	3	--	2.1	--	20	--	--
HUNLOCK CREEK AT HUNLOCK																						
Feb. 28, 1948	--	36	9	6.8	53.5	--	--	--	--	--	--	--		9	14	1	--	2.3	--	21	14	--
Nov. 4,	--	54	--	6.9	70.8	--	--	--	--	--	--	--		26	8.4	3.5	--	.4	--	20	0	--
SHICKSHINNY CREEK AT SHICKSHINNY																						
Feb. 28, 1948	--	35	10	6.5	52.5	--	--	--	--	--	--	--		7	14	2	--	2.3	--	24	18	--
Nov. 4,	--	54	--	6.9	82.7	--	--	--	--	--	--	--		16	19	3	--	1.2	--	22	9	--
WAPWALLOPEN CREEK AT WAPWALLOPEN																						
Feb. 25, 1949	131	41	5	7.4	45.6	5.6	--	.12	--	5.2	1.4	3.3		10	13	3	.0	.2	33	19	11	--
Mar. 24,	43	47	5	6.6	47.0	--	--	.15	--	--	--	--		8	19	4	.0	1.1	32	27	20	--
Apr. 22,	109	54	5	6.5	44.3	--	--	.08	--	--	--	--		8	17	5	.0	.8	28	32	25	--
May 19,	55	60	7	7.0	41.4	4.2	--	.08	--	4.5	1.7	--		10	9.5	1	.1	.6	37	18	10	--
June 17,	16	72	5	7.0	45.0	--	--	.05	--	--	--	--		11	9.9	4	.0	.7	37	20	11	--
July 22,	6.6	78	15	7.5	52.6	--	--	.13	--	--	--	--		15	9.7	2	.0	.1	30	21	9	--
Aug. 29,	48	70	25	6.2	51.4	3.6	--	.07	--	5.0	2.3	2.6		11	13	2	.2	2.0	38	22	13	--
Sept. 30,	16	57	5	6.6	67.6	4.9	--	.08	.00	5.3	1.9	2.0		14	10	2.5	.0	.0	34	21	10	--
NESCOPECK CREEK AT NESCOPECK																						
Nov. 4, 1948	--	58	--	3.10	1270	18	--	--	--	--	--	--		0	590	24	--	.4	--	--	--	--
Feb. 25, 1949	530	43	2	3.55	401	13	10	.32	2.2	16	5.7	13		0	148	7	.0	3.0	213	138	--	--
Mar. 24,	230	48	3	3.40	589	--	--	.26	--	--	--	--		0	234	7	.0	1.3	347	162	--	--
Apr. 22,	700	56	5	3.55	436	--	--	.25	--	--	--	--		0	167	5	.0	.9	240	125	--	--
May 19,	130	73	3	3.50	606	6.0	18	.77	3.2	18	21	4.0		0	245	6	.0	.9	382	256	256	--
June 17,	125	74	3	3.15	973	--	--	.70	--	--	--	--		0	414	15	.0	1.0	678	161	--	--
July 22,	72.0	82	5	3.70	1130	--	--	1.6	--	--	--	--		0	524	10	.1	1.3	850	371	--	--
Aug. 29,	165	74	2	3.65	1040	20	25	2.5	6.0	38	46	26		0	478	6	.2	3.1	696	452	452	--
Sept. 30,	105	61	1	2.40	1250	19	45	2.6	4.7	48	11	.8		0	641	8	.1	1.9	827	679	--	--

PVPL712, 1/9
Inc. 241
APRIL 1952
COMMERCE
WAPHS

MISCELLANEOUS ANALYSES OF STREAMS IN SUSQUEHANNA RIVER BASIN--Continued

Chemical analyeee, in parte per million

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ce)	Magnesium (Mg)	Sodium (Na)	Potaeium (K)	Bicarbonate (HCO_3)	Sulfete (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved eolids	Hardnese as $CaCO_3$		Total acidity as H_2SO_4
																				Total	Noncarbonate	
CATAWISSA CREEK AT CATAWISSA																						
Mer. 20, 1947	--	40	4	3.80	217	--	--	.29	--	9.8	6.5	11		0	77	2.0	--	.1	--	60	--	--
Sept. 16,	--	74	2	3.60	381	--	--	--	--	15	15	--		0	159	4	--	1.5	--	111	--	--
Feb. 25, 1949	640	43	3	4.40	131	7.8	3.2	.15	.24	7.6	3.9	1.8		0	47	5	0.0	3.2	75	55	--	--
Mar. 24,	175	53	5	4.25	192	--	--	.12	--	--	--	--		0	78	1.0	.1	1.7	111	61	--	--
Apr. 22,	550	54	3	4.30	146	--	--	.12	--	--	--	--		0	60	2.0	.0	1.5	82	44	--	--
May 19,	56.0	73	3	3.80	266	5.6	7.5	.31	1.0	11	8.8	--		0	104	4	.1	1.2	175	116	116	--
June 17,	74.0	76	3	3.80	350	--	--	.18	--	--	--	--		0	144	13	.0	1.2	234	92	--	--
July 22,	20.0	80	5	4.20	380	--	--	.23	--	--	--	--		0	155	4.0	.0	1.7	261	94	--	--
Aug. 29,	74.5	73	5	4.05	576	14	10	.55	3.1	24	27	22		0	266	4.0	.2	2.6	398	238	238	--
Sept. 30,	86.0	56	1	3.10	602	15	29	.90	1.4	26	13	1.5		0	315	2	.1	2.8	--	329	--	--
MAHONING CREEK AT DANVILLE																						
Feb. 28, 1948	--	39	35	6.7	90.8	--	--	.35	--	12	3.7	5.4		20	27	5	--	6.5	--	45	29	--
Nov. 4,	--	60	--	7.5	182	5.1	--	--	--	--	--	--		73	22	4.0	--	2.6	--	66	6	--
BRIAR CREEK AT BRIAR																						
Feb. 28, 1948	--	38	25	7.0	79.9	--	--	.44	--	9.5	3.9	--		17	16	1	--	6.1	--	40	26	--
Nov. 4,	--	--	--	7.0	119	--	--	--	--	--	--	13		49	14	3.5	--	3.0	--	34	0	--
SHAMOKIN CREEK AT WEIGH SCALE																						
Feb. 24, 1949	162	49	3	3.00	1540	4.0	--	1.5	--	95	20	7.7		0	597	15	.0	.2	1020	626	626	--
Mar. 24,	75	61	15	3.75	1440	--	--	49	--	--	--	--		0	663	82	.1	11	1140	316	--	--
Apr. 22,	112	58	10	3.00	1470	--	--	20	--	--	--	--		0	709	13	.1	1.7	1200	372	--	--
Mey 19,	99	71	10	3.00	1850	24	45	11	6.1	85	58	28		0	659	120	.0	3.4	1200	798	798	--
June 16,	74	75	30	3.20	1550	--	--	13	--	--	--	--		0	720	65	.1	9.2	1170	389	--	--
July 21,	41	80	20	4.6	1550	--	--	12	--	--	--	--		0	753	72	.0	14	1310	638	--	--
Aug. 26,	36	77	20	3.90	1620	23	--	7.7	--	119	62	29		0	776	60	.2	8.0	1230	837	837	--
Sept. 29,	56	70	5	6.1	754	9.4	6.2	18	1.9	58	34	2.4		55	284	24	.1	1.6	510	371	326	--
PENNS CREEK NEAR SELINSGROVE																						
Nov. 4, 1948	--	53	--	7.9	212	--	--	--	--	--	--	14		107	14	2.8	--	.5	--	77	--	--
MIDDLE CREEK NEAR SELINSGROVE																						
Feb. 28, 1948	--	38	30	7.2	92.9	--	--	.45		12	3.6	--		28	15	2	--	5.0	--	45	22	--
Nov. 4,	--	53		7.6	215	7.0	--	--	--	--	--	--		83	24	6.0	--	3.3	--	76	8	--

Chemical analyses, in parts per million

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Noncarbonate	Total acidity as H_2SO_4
MAHANOY CREEK AT DORNSIFE																						
Feb. 24, 1949	240	44	5	3.50	917	5.8	27	.23	4.7	61	22	1.8		0	396	7	0.0	.1	662	418	418	--
Mar. 24, "	160	62	3	3.40	1410	--	--	.45	--	--	--	--		0	777	3.0	.1	.6	1000	474	--	--
Apr. 22, "	500	56	3	3.50	1020	--	--	.44	--	--	--	--		0	531	5.0	.1	.2	772	319	--	--
May 19, "	110	75	5	3.40	1500	12	35	.88	8.7	112	78	36		0	847	22	.0	.0	1280	834	834	--
June 16, "	82.0	81	3	3.35	1770	--	--	.76	--	--	--	--		0	1020	20	.0	.0	1680	444	--	--
July 21, "	87.0	86	5	3.70	2060	--	--	1.2	--	--	--	--		0	1200	8.0	.1	.9	1960	708	--	--
Aug. 26, "	90.0	75	5	3.80	2110	30	45	2.0	12	176	117	97		0	1350	6.0	.3	1.4	2020	1210	1210	--
Sept. 29, "	165	59	1	2.90	1960	21	31	2.6	7.2	150	78	147		0	1210	12	.1	2.4	1760	959	--	--
WEST MAHANTANGO CREEK NEAR McKEES HALF FALLS																						
Feb. 28, 1948	--	40	40	6.9	78.6	--	--	.31	--	12	2.0	4.1		20	19	4	--	6.4	--	38	28	--
Nov. 4, "	--	55	--	7.8	185	5.5	--	--	--	--	--	--		77	22	2.8	--	1.8	--	70	7	--
EAST MAHANTANGO CREEK NEAR DALMATIA																						
Feb. 24, 1949	718	42	5	6.2	95.6	3.2	--	.05	--	7.3	3.9	4.5		4	27	4	.0	8.8	54	34	31	--
Mar. 25, "	127	51	3	4.80	125	--	--	.27	--	--	--	--		--	46	2.0	.0	3.5	65	40	--	--
Apr. 25, "	309	51	5	5.8	86.0	--	--	.11	--	--	--	--		--	43	3.0	.0	3.0	53	38	--	--
May 20, "	130	66	3	4.6	144	2.8	1.5	.13	.7	9.2	6.2	2.2		4	52	3.0	.0	2.0	87	58	55	--
June 16, "	41	76	2	4.20	212	--	--	.06	--	--	--	--		--	75	5.0	.0	1.3	134	45	--	--
July 21, "	47	81	10	6.3	128	--	--	.20	--	--	--	--		7	43	3.0	.1	5.4	104	46	40	--
Aug. 26, "	22	78	5	5.7	187	5.4	--	.10	--	14	9.8	5.8		3	73	5.0	.1	3.0	121	76	73	--
Sept. 29, "	29	61	5	4.20	211	6.5	.4	.02	1.0	15	7.2	5.6		0	78	2.2	.0	2.4	128	72	--	--
WICONISCO CREEK NEAR ELIZABETHVILLE																						
Feb. 24, 1949	620	44	3	7.0	125	3.4	--	.07	--	12	5.2	2.9		8	43	3.5	.1	1.7	77	52	45	--
Mar. 25, "	64.0	51	5	6.6	235	--	--	.12	--	--	--	--		12	101	2.0	.0	2.2	138	107	97	--
Apr. 25, "	235	57	5	6.8	125	--	--	.15	--	--	--	--		10	49	3.0	.0	2.0	76	66	50	--
May 20, "	70.0	62	10	6.7	241	1.6	--	.62	--	23	13	2.0		24	88	3.0	.1	1.6	157	112	93	--
June 16, "	30.5	74	3	7.3	331	--	--	.03	--	--	--	--		34	123	6.0	.0	2.6	234	121	93	--
July 21, "	26.5	82	10	7.3	326	--	--	.08	--	--	--	--		30	110	6.0	.1	4.8	233	129	104	--
Aug. 26, "	17.0	72	7	7.5	501	8.5	--	.19	--	50	27	10		40	204	7.0	.1	3.8	344	236	203	--
Sept. 29, "	22.0	60	5	6.5	392	6.8	--	.04	--	37	18	10		37	144	4	.1	2.4	255	166	136	--

RAPHS
OMMERCE
APRIL 1952
PYP712.17/9
[no. 24]
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MISCELLANEOUS ANALYSES OF STREAMS IN SUSQUEHANNA RIVER BASIN--Continued

Chemical analyses, in parts per million

Date of collection	Mean discharge (second feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Noncarbonate	Total acidity as H_2SO_4
FRANKSTOWN BRANCH OF JUNIATA RIVER NEAR WILLIAMSBURG																						
Aug. 11, 1948	97.0	69	10	8.1	395	4.0	--	--	--	42	13	--		--	34	--	0.0	--	--	158	--	--
Aug. 17	90.8	68	10	7.9	406	2.8	--	0.05	--	49	15	18		162	57	18	.0	5.7	263	184	51	--
Sept. 1	93.1	65	15	7.4	391	--	--	--	--	--	--	--		168	44	--	.0	5.1	--	177	--	--
FRANKSTOWN BRANCH OF JUNIATA RIVER BELOW WILLIAMSBURG																						
Aug. 11, 1948	98.4	71	40	7.9	469	5.0	--	--	--	50	17	--		--	42	--	.0	--	--	185	--	--
Aug. 17	92.5	78	60	7.5	488	2.4	--	.07	--	52	16	24		186	48	30	.0	3.6	325	196	43	--
Sept. 1	94.7	75	60	7.4	456	--	--	--	--	--	--	--		180	50	--	.1	1.9	--	207	--	--
FRANKSTOWN BRANCH OF JUNIATA RIVER AT ALEXANDRIA																						
Aug. 11, 1948	125	70	20	8.2	404	5.0	--	--	--	46	17	--		--	36	--	.0	--	--	185	--	--
Aug. 17	116	75	20	7.8	421	3.6	--	.05	--	48	16	25		184	48	25	.0	5.4	261	186	35	--
Sept. 1	99.6	72	35	8.1	412	--	--	--	--	--	--	--		184	40	--	.0	2.9	--	189	--	--
FRANKSTOWN BRANCH OF JUNIATA RIVER AT HUNTINGTON																						
Aug. 12, 1948	69.0	67	15	7.6	366	6.0	--	--	--	38	16	--		--	24	--	.0	--	--	152	--	--
Aug. 18	73.8	67	15	7.3	372	3.2	--	.10	--	42	13	--		154	31	20	.0	3.4	228	158	32	--
Sept. 2	103	67	25	7.8	386	--	--	--	--	--	--	--		156	34	--	.0	.0	--	183	--	--
FRANKSTOWN BRANCH OF JUNIATA RIVER BELOW HUNTINGTON																						
Aug. 12, 1948	210	70	10	7.8	253	4.0	--	--	--	31	10	--		--	19	--	.0	--	--	118	--	--
Aug. 18	88.3	67	10	7.6	275	2.6	--	.10	--	33	10	7.7		121	25	10	.0	1.0	168	123	24	--
Sept. 2	151	65	15	7.6	304	--	--	--	--	--	--	--		136	34	--	.0	.7	--	177	--	--
JUNIATA RIVER AT MILL CREEK																						
Aug. 12, 1948	452	71	10	7.9	320	4.0	--	--	--	36	13	--		--	34	--	.0	--	--	143	--	--
Aug. 18	391	70	10	7.3	338	2.2	--	.08	--	38	13	10		132	38	15	.0	2.6	204	148	40	--
Sept. 2	308	69	20	7.7	347	--	--	--	--	--	--	--		132	40	--	.0	1.7	--	177	--	--
JUNIATA RIVER AT MOUNT UNION																						
Aug. 12, 1948	444	73	12	7.8	306	4.0	--	--	--	35	13	--		--	40	--	.0	--	--	141	--	--
Aug. 18	382	72	10	7.4	334	1.2	--	.08	--	38	13	12		130	36	14	.0	2.5	200	140	34	--
Sept. 2	334	70	20	7.6	337	--	--	--	--	--	--	--		140	41	--	.0	1.0	--	177	--	--
JUNIATA RIVER AT LEWISTOWN																						
Aug. 12, 1948	733	76	10	8.0	261	2.0	--	--	--	34	11	--		--	36	--	.0	--	--	130	--	--
Aug. 18	617	74	10	7.8	298	1.2	--	.04	--	35	11	8.4		114	40	10	.0	1.4	186	132	39	--
Sept. 2	645	75	15	8.2	321	--	--	--	--	--	--	--		120	41	--	.0	.7	--	189	--	--

Chemical analyses, in parts per million

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$		Total acidity as H_2SO_4
																				Total	Non carbonate	
JUNIATA RIVER NEAR LEWISTOWN																						
Aug. 12, 1948	762	76	10	7.8	323	2.0	--	--	--	34	12	--		--	59	--	0.0	--	--	134	--	--
Aug. 18	641	74	10	7.5	338	1.6	--	0.10	--	35	11	18		108	63	12	.0	1.0	207	133	44	--
JUNIATA RIVER AT MIFFLINTOWN																						
Aug. 12, 1948	1,110	80	9	7.8	342	2.0	--	--	--	35	10	--		--	66	--	.0	--	--	--	--	--
Aug. 18	916	77	10	7.6	374	.8	--	.10	--	36	11	24		111	73	13	.0	1.3	230	135	44	--
Sept. 2	655	75	15	7.8	407	--	--	--	--	--	--	--		108	92	--	.0	.5	--	177	--	--
JUNIATA RIVER AT NEWPORT																						
Aug. 12, 1948	876	79	8	7.9	323	2.0	--	--	--	33	10	--		--	51	--	.0	--	--	--	--	--
Aug. 18	762	75	5	7.8	345	2.0	--	.06	--	35	11	18		108	65	11	.0	.9	208	133	44	--
Sept. 2	662	74	15	8.2	383	--	--	--	--	--	--	--		104	84	--	.0	.0	--	159	--	--
LITTLE JUNIATA RIVER AT PINECROFT																						
Aug. 11, 1948	13.2	65	40	7.2	1,330	15	--	--	--	39	11	--		100	91	--	.1	--	--	143	--	--
Aug. 17	15.3	67	30	6.8	457	9.6	--	.67	--	41	9.7	40		116	102	20	.0	.4	292	142	47	--
Sept. 1	15.9	64	50	6.9	499	--	--	--	--	--	--	--		96	123	--	.0	.8	--	159	--	--
LITTLE JUNIATA RIVER ABOVE TYRONE																						
Aug. 11, 1948	17.8	67	15	7.6	201	15	--	--	--	37	11	--		104	60	--	.2	--	--	138	--	--
Aug. 17	13.0	67	10	7.0	375	5.6	--	.12	--	40	9.1	23		100	67	18	.0	13	278	137	55	--
Sept. 1	14.7	62	25	7.4	467	--	--	--	--	--	--	--		112	65	--	.1	8.2	--	189	--	--
LITTLE JUNIATA RIVER BELOW TYRONE																						
Aug. 11, 1948	55.7	71	75	7.8	593	10	--	--	--	60	8.5	--		152	46	--	.1	--	--	185	--	--
Aug. 17	54.3	72	100	7.3	538	4.0	--	.11	--	70	7.0	29		145	46	70	.0	1.4	352	203	29	--
Sept. 1	48.9	72	100	7.4	589	--	--	--	--	--	--	--		148	63	--	.1	1.1	--	207	--	--
LITTLE JUNIATA RIVER ABOVE SPRUCE CREEK																						
Aug. 11, 1948	101	69	25	7.8	437	7.0	--	--	--	45	7.7	--		144	21	--	.0	--	--	144	--	--
Aug. 19	110	66	25	7.3	447	3.6	--	.08	--	43	10	37		139	33	55	.0	3.4	284	148	35	--
Sept. 1	99.0	64	30	7.7	486	--	--	--	--	--	--	--		144	35	--	.0	1.7	--	196	--	--
LITTLE JUNIATA RIVER AT BARREE																						
Aug. 11, 1948	164	64	25	8.0	381	5.0	--	--	--	--	13	--		160	20	--	.0	--	--	--	--	--
Aug. 19	155	67	20	7.7	369	2.4	--	.09	--	40	3.0	36		152	23	28	.0	3.6	243	112	0	--
Sept. 1	141	64	30	8.0	395	--	--	--	--	--	--	--		148	28	--	.0	1.9	--	183	--	--

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MISCELLANEOUS ANALYSES OF STREAMS IN SUSQUEHANNA RIVER BASIN—Continued

Chemical analyses, in parts per million

Date of collection	Mean discharge (second feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Non carbonate	Total acidity as H_2SO_4
SOUTH BALD EAGLE CREEK NEAR TYRONE																						
Aug. 11, 1948	18.4	68	7	7.5	400	6.0	--	--	--	12	4.3	--		36	14	--	0.0	--	--	48	--	--
Aug. 17	22.6	67	7	7.3	87.7	3.4	--	0.08	--	9.7	2.3	7.2		37	15	2.0	.0	0.8	53	34	3	--
Sept. 1	17.7	67	16	7.2	106	--	--	--	--	--	--	--		40	19	--	.0	.3	--	82	--	--
SOUTH BALD EAGLE CREEK AT TYRONE																						
Aug. 11, 1948	19.8	75	75	8.3	447	10	--	--	--	66	6.6	--		116	36	--	.0	--	--	187	--	--
Aug. 17	24.3	76	140	7.1	690	6.8	--	.16	--	54	8.0	97		177	39	135	.0	2.2	502	168	22	--
Sept. 1	18.9	74	100	9.1	563	--	--	--	--	--	--	--		116	52	--	.1	1.9	--	141	--	--
CLOVER CREEK AT LARKE																						
Aug. 17, 1948	12.8	--	5	7.9	310	3.0	--	.06	--	37	17	--		175	10	2.2	.0	9.0	181	162	19	--
STANDING STONE CREEK AT HUNTINGTON																						
Aug. 17, 1948	15.2	--	8	7.6	169	2.5	--	.05	--	29	7.6	--		98	20	2.2	.0	1.0	128	104	24	--
RAYSTOWN BRANCH OF JUNIATA RIVER AT EVERETT																						
Aug. 16, 1948	85.0	--	7	7.8	264	4.4	--	.06	--	36	11	2.5		126	25	4.2	.0	4.5	179	133	30	--
RAYSTOWN BRANCH OF JUNIATA RIVER AT SAXTON																						
Aug. 16, 1948	188	78	8	8.0	268	2.4	--	.05	--	35	11	--		168	38	3.0	.0	2.7	168	134	44	--
RAYSTOWN BRANCH OF JUNIATA RIVER NEAR HUNTINGTON																						
Aug. 12, 1948	1,250	73	7	7.8	271	3.0	--	--	--	38	14	--		--	39	--	.0	--	--	152	--	--
Aug. 17	23.1	--	5	7.5	260	2.0	--	.05	--	31	10	5.7		88	51	2.5	.0	2.6	168	118	46	--
Sept. 2	282	75	10	7.3	268	--	--	--	--	--	--	--		84	53	--	.0	1.3	--	159	--	--
DUNNING CREEK AT BELDEN																						
Aug. 16, 1948	18.8	--	10	7.6	281	3.1	--	.05	--	40	9.7	--		110	45	1.8	.0	2.4	189	140	50	--
GREAT TROUGH CREEK AT MARKLESBURG																						
Aug. 16, 1948	8.8	73	7	4.25	231	7.8	--	.08	--	22	9.1	--		0	87	3.0	.0	.8	164	98	98	28
AUGHWICK CREEK NEAR THREE SPRINGS																						
Aug. 17, 1948	25.8	--	8	7.3	138	2.2	--	.05	--	20	4.3	--		56	19	2.2	.0	.6	89	68	17	--

Chemical analyses, in parts per million

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Noncarbonate	Total acidity as H_2SO_4
KISHACOQUILLAS CREEK AT REEDSVILLE																						
Aug. 18, 1948	51.2	--	7	7.2	293	4.0	--	.08	--	40	7.1	--	--	164	15	3.2	0.0	7.2	185	150	23	--
TUSCARORA CREEK AT PORT ROYAL																						
Aug. 18, 1948	17.0	--	8	7.7	206	1.8	--	.08	--	36	6.7	--	--	126	16	2.2	.0	1.0	127	122	19	--
COCOLAMUS CREEK NEAR MILLERSTOWN																						
Aug. 18, 1948	4.0	--	8	7.6	172	2.6	--	.06	--	26	5.2	--	--	87	11	3.0	.0	1.9	103	86	15	--
BUFFALO CREEK AT NEWPORT																						
Aug. 18, 1948	5.6	--	5	7.5	184	1.4	--	.04	--	25	4.9	1.6		86	11	2.2	.0	1.2	95	83	12	--
LITTLE JUNIATA CREEK AT DUNCANNON																						
Nov. 4, 1948	--	55	--	7.6	174	4.6	--	--	--	--	--	--	--	75	16	4.0	--	3.0	--	65	4	--
SHERMAN CREEK AT DUNCANNON																						
Nov. 4, 1948	--	53	--	7.8	185	3.7	--	--	--	--	--	--	--	92	13	2.5	--	1.3	--	71	--	--
SWATARA CREEK AT HARPER-TAVERN																						
Feb. 24, 1949	1530	44	5	8.4	87.4	2.0	--	.09	--	9.5	2.8	3.6	--	a16	19	5	.0	3.6	61	35	--	--
Mar. 25,	371	52	5	6.8	113	--	--	.05	--	--	--	--	--	18	39	3.0	.0	3.0	69	46	31	--
Apr. 25,	1280	50	5	6.8	79.0	--	--	.15	--	--	--	--	--	12	28	3.0	.0	3.4	45	34	24	--
May 20,	264	67	5	5.8	122	6.6	--	.09	--	15	5.2	1.8	--	22	32	3.0	.2	2.8	89	54	36	--
June 16,	82	75	1	7.1	180	--	--	.03	--	--	--	--	--	21	61	3.0	.0	1.8	132	70	53	--
July 21,	164	80	7	7.4	164	--	--	.11	--	--	--	--	--	64	36	4.0	.0	7.8	126	66	22	--
Aug. 26,	45	66	5	7.2	241	5.2	--	.19	--	27	10	5.2	--	38	75	4.0	.2	3.6	164	108	77	--
Sept. 29,	71	60	10	6.5	329	7.0	--	.02	--	26	11	4.8	--	20	95	3.0	.0	1.8	171	110	94	--
SWATARA CREEK NEAR HUMMELSTOWN																						
Feb. 28, 1948	--	41	35	7.1	141	--	--	.36	--	20	4.4	3.8		39	33	3	--	7.0	--	68	36	--
SWATARA CREEK NEAR MIDDLETOWN																						
Nov. 4, 1948	--	55	--	7.6	325	7.9	--	--	--	--	--	--	--	118	48	7.2	--	9.7	--	107	10	--
CONEWAGO CREEK NEAR ELIZABETHTOWN (S.W. Lebanon County)																						
Nov. 4, 1948	--	56	--	7.3	175	18	--	--	--	--	--	--	--	63	20	5.6	--	3.6	--	55	3	--
LITTLE CHICKIES CREEK AT MT. JOY																						
Nov. 4, 1948	--	55	--	7.5	277	7.6	--	--	--	--	--	--	--	148	16	7.0	--	pl	--	107	--	--

[a] Includes equivalent of 6 parts per million of carbonate (CO_3).

RAPHS

OMMERCE

APRIL 1952

PYP712.17/9
I no. 243

MISCELLANEOUS ANALYSES OF STREAMS IN SUSQUEHANNA RIVER BASIN--Continued

Chemical analyses, in parts per million

603x0

Date of collection	Mean discharge (second feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Noncarbonate	Total acidity as H_2SO_4
									CONESTOGA CREEK AT UNION GROVE													
Oct. 19, 1948	29.2	47	17	7.6	266	--	--	--	--	--	--	--		158	11	6.0	0.0	8.0	--	219	--	--
Oct. 26	26.6	52	10	7.9	292	7.0	--	.05	--	35	14	13		166	20	6.0	.0	11	181	145	89	--
Nov. 3	22.1	50	20	7.6	308	7.8	--	--	--	--	--	--		174	11	8.0	.1	9.0	--	232	--	--
									CONESTOGA CREEK AT WEAVERLAND													
Oct. 19, 1948	30.2	48	17	7.6	258	--	--	--	--	--	--	--		158	12	8.0	.0	7.0	--	296	--	--
Oct. 26	27.5	50	10	7.9	304	6.4	--	.09	--	36	18	7.6		177	18	6.0	.0	11	187	164	14	--
Nov. 3	22.8	50	18	7.8	308	7.0	--	--	--	--	--	--		178	13	9.0	.1	8.8	--	232	--	--
									CONESTOGA CREEK AT MARTINSDALE													
Oct. 19, 1948	32.5	49	20	7.7	272	--	--	--	--	--	--	--		174	12	8.0	.0	6.8	--	310	--	--
Oct. 26	29.6	49	10	7.9	347	4.0	--	.09	--	47	20	2.6		202	20	6.0	.0	13	252	200	34	--
Nov. 3	24.6	50	20	7.9	384	6.9	--	--	--	--	--	--		214	20	10	.1	13	--	244	--	--
									CONESTOGA CREEK AT HINKLETOWN													
Oct. 19, 1948	55.5	49	22	7.5	300	--	--	--	--	--	--	--		152	22	7.0	.0	6.4	--	219	--	--
Oct. 26	42.9	40	12	7.8	313	6.4	--	.09	--	40	12	15		166	25	8.0	.0	10	224	149	13	--
Nov. 3	38.5	50	25	7.8	327	6.9	--	--	--	--	--	--		178	19	10	.0	8.0	--	207	--	--
									CONESTOGA CREEK AT BROWNSTOWN													
Oct. 19, 1948	80.3	50	17	7.6	316	--	--	--	--	--	--	--		174	19	8.0	.0	10	--	232	--	--
Oct. 26	39.6	50	10	7.8	328	5.2	--	.08	--	45	14	11		184	23	8.0	.0	11	233	170	19	--
Nov. 3	45.2	50	15	7.9	341	5.6	--	--	--	--	--	--		186	21	10	.0	11	--	219	--	--
									CONESTOGA CREEK AT OREGON													
Oct. 19, 1948	153	50	17	7.5	293	--	--	--	--	--	--	--		174	18	8.0	.0	9.0	--	270	--	--
Oct. 26	87.8	52	20	7.9	346	4.4	--	.13	--	46	14	9.4		181	22	9.0	.1	11	215	173	20	--
Nov. 3	80.0	50	25	7.8	341	6.2	--	--	--	--	--	--		192	22	10	.1	9.5	--	219	--	--
									CONESTOGA CREEK AT HUNSECKER													
Oct. 19, 1948	186	51	15	7.6	334	--	--	--	--	--	--	--		188	17	8.0	.0	11	--	207	--	--
Oct. 26	123	53	10	8.0	344	6.6	--	.05	--	48	18	5.0		186	30	8.0	.0	12	216	194	41	--
Nov. 3	104	51	15	7.8	358	5.0	--	--	--	--	--	--		198	22	12	.0	9.2	--	219	--	--
									CONESTOGA CREEK NEAR EDEN													
Oct. 19, 1948	188	52	10	7.7	344	--	--	--	--	--	--	--		188	20	8.0	.0	11	--	219	--	--
Oct. 26	124	51	10	7.9	351	5.2	--	.10	--	50	14	11		190	29	8.0	.0	11	219	183	27	--
Nov. 3	105	52	20	7.8	361	4.8	--	--	--	--	--	--		201	21	14	.0	9.0	--	232	--	--

Chemical analyses, in parts per million

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$		Total acidity as H_2SO_4
																				Total	Non-carbonate	
CONESTOGA CREEK AT LANCASTER (U.S.G.S. Gaging Station)																						
Oct. 19, 1948	192	52	10	7.7	365	--	--	--	--	--	--	--	--	200	19	8.0	0.0	10	--	270	--	--
Oct. 26,	127	53	15	7.7	344	5.4	--	.09	--	50	14	11		194	21	10	.0	13	250	183	24	
Nov. 3,	107	52	20	7.8	372	5.1	--	--	--	--	--	--		206	21	12	.0	10	--	219	--	--
CONESTOGA CREEK NEAR LANCASTER (U. S. Highway 30)																						
Oct. 19, 1948	202	49	5	7.5	404	--	--	--	--	--	--	--	--	204	23	12	.0	14	--	257	--	--
Oct. 26,	136	53	15	8.0	358	6.0	--	.09	--	51	15	10		196	26	10	.0	12	230	189	28	
Nov. 3,	115	58	10	7.6	401	5.1	--	--	--	--	--	--		206	22	16	.0	12	--	378	--	--
CONESTOOA CREEK AT LANCASTER (U. S. Highway 222)																						
Oct. 19, 1948	202	54	5	7.7	376	--	--	--	--	--	--	--	--	200	21	10	.0	14	--	283	--	--
Oct. 26,	136	53	10	8.1	391	4.0	--	.14	--	51	16	4.6		182	28	12	.0	12	237	193	44	
Nov. 3,	116	52	10	7.6	398	3.6	--	--	--	--	--	--		202	24	15	.0	11	--	244	--	--
CONESTOGA CREEK NEAR LANCASTER (State Highway 324)																						
Oct. 20, 1948	233	50	5	7.6	413	--	--	--	--	--	--	--	--	218	21	12	.0	14	--	310	--	--
Oct. 26,	133	61	15	7.6	410	4.0	--	.06	--	53	16	16		214	25	16	.0	11	274	198	23	
Nov. 3,	132	52	10	7.5	448	4.4	--	--	--	--	--	--		230	28	21	.0	7.5	--	232	--	--
CONESTOGA CREEK NEAR NEW DANVILLE																						
Oct. 20, 1948	234	50	10	7.6	411	--	--	--	--	--	--	--	--	210	22	10	.0	14	--	296	--	--
Oct. 26,	134	54	15	8.1	395	4.0	--	.07	--	52	17	14		206	31	14	.0	12	242	200	31	
Nov. 3,	133	51	20	7.5	425	3.4	--	--	--	--	--	--		220	27	21	.0	9.2	--	232	--	--
CONESTOOA CREEK NEAR MILLERSVILLE																						
Oct. 20, 1948	235	50	15	7.7	396	--	--	--		52	14	16		198	22	12	.0	13	--	257	--	--
Oct. 26,	307	54	12	7.9	382	3.0	--	.12						206	24	14	.0	11	264	188	17	
Nov. 3,	133	52	15	7.5	[illegible]	3.2	--	--						220	26	22	.0	9.8	--	219	--	--

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APRIL 1952
COMMERCE
GAPHS

MISCELLANEOUS ANALYSES OF STREAMS IN SUSQUEHANNA RIVER BASIN--Continued

Chemical analyses, in parts per million

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$		Total acidity as H_2SO_4
																				Total	Non carbonate	
CONESTOGA CREEK NEAR CONESTOOA																						
Oct. 20, 1946	333	50	15	7.6	400	--	--	--	--	--	--	--		202	23	14	0.0	14	--	283	--	--
Oct. 26	343	54	15	7.9	395	4.2	--	0.06	--	51	16	15		202	32	14	.0	10	243	193	26	--
Nov. 3	361	52	20	7.5	428	2.8	--	--	--	--	--	--		224	26	22	.0	10	--	207	--	--
CONESTOGA CREEK AT SAFE HARBOR																						
Oct. 20, 1948	379	51	10	7.5	395	--	--	--	--	--	--	--		210	22	12	.0	12	--	244	--	--
Oct. 26	373	54	25	6.0	405	2.0	--	.13	--	52	15	14		204	25	15	.0	9.0	262	192	25	--
Nov. 3	369	51	15	7.6	425	2.2	--	--	--	--	--	--		232	25	18	.0	10	--	323	--	--
MUDDY CREEK AT HINKLETOWN																						
Oct. 19, 1948	21.0	48	27	7.2	176	--	--	--	--	--	--	--		66	23	7.0	.0	3.0	--	134	--	--
Oct. 26	11.7	49	15	7.3	214	9.6	--	.10	--	23	5.0	17		82	36	6.0	.0	2.3	150	76	11	--
Nov. 3	12.5	50	20	7.6	194	9.2	--	--	--	--	--	--		84	21	9.0	.0	1.2	--	134	--	--
CACALICO CREEK NEAR OREGON																						
Oct. 19, 1948	69.0	48	10	7.6	295	--	--	--	--	--	--	--		158	17	9.0	.0	8.0	--	257	--	--
Oct. 26	45.8	50	15	7.9	316	5.4	--	.07	--	47	11	10		172	22	8.0	.0	12	210	163	22	--
Nov. 3	30.5	50	20	7.8	324	6.1	--	--	--	--	--	--		182	15	12	.1	8.8	--	232	--	--
LITITZ CREEK AT OREGON																						
Oct. 19, 1948	16.0	49	1	--	400	--	--	--	--	--	--	--		244	18	11	.0	17	--	257	--	--
Oct. 26	13.9	52	20	7.6	448	6.0	--	.20	--	74	11	11		252	19	11	.1	14	287	230	24	--
Nov. 3	10.9	51	30	8.0	458	8.0	--	--	--	--	--	--		270	20	16	.1	11	--	257	--	--
MILL CREEK AT LANCASTER																						
Oct. 19, 1948	34.5	48	5	7.9	398	--	--	--	--	--	--	--		225	13	8.0	.0	18	--	323	--	--
Oct. 26	23.8	53	15	8.0	387	2.6	--	.06	--	52	21	10		234	21	10	.0	13	276	216	28	--
Nov. 3	33.4	50	5	7.6	410	4.1	--	--	--	--	--	--		236	15	13	.0	12	--	244	--	--
LITTLE CONESTOOA CREEK NEAR SAFE HARBOR																						
Oct. 20, 1948	45.0	50	5	8.0	416	--	--	--	--	--	--	--		218	20	12	.0	14	--	257	--	--
Oct. 26	28.7	56	15	8.3	405	4.4	--	.07	--	61	14	18		228	22	22	.0	11	292	210	23	--
Nov. 3	26.8	57	10	7.7	429	4.5	--	--	--	--	--	--		228	24	24	.0	9.8	--	196	--	--
EAST BRANCH OCTORARO CREEK NEAR HOMEVILLE (Chester County, Pa.)																						
July 14, 1949	7½	79	17	6.6	124	6.0	--	.08	--	12	3.7	8.0		32	14	5.8	.1	8.5	85	45	19	--
OCTORARO CREEK AT LEES BRIDGE NEAR GLENROY (Chester County, Pa.)																						
July 14, 1949	250	75	28	6.6	96.3	5.7	--	.20	--	8.6	3.1	9.5	--	26	11	4.4	.1	8.9	69	34	13	--
WEST BRANCH OCTORARO CREEK NEAR SPRUCE GROVE (Chester County, Pa.)																						
July 14, 1949	229	74	21	8.5	102	5.8	--	.13	--	9.8	3.1	8.6	--	26	11	5.0	.1	8.2	72	37	15	--
MUDDY CREEK NEAR HOMEVILLE																						
July 14, 1949	11.8	75	12	6.8	78.1	8.0	--	.11	--	6.2	2.7	2.8	2.4	16	7.7	4.9	.1	8.3	58	27	13	--

MISCELLANEOUS ANALYSES OF STREAMS IN OHIO RIVER BASIN

Chemical analyses, in parts per million

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Microohms at 25°C)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$: Total	Hardness as $CaCO_3$: Non carbonate	Total acidity as H_2SO_4
FRENCH CREEK AT CARTERS CORNERS, PA.																						
Aug. 5, 1949	96	69	25	7.2	182	4.0	—	.04	.00	27	5.3	2.7	1.8	84	16	2.6	.1	1.4	108	89	28	—
FRENCR CREEK AT MEADVILLE, PA.																						
Aug. 5, 1949	395	76	30	7.2	211	3.6	—	.17	.00	27	4.7	8.0	3.3	84	19	8.2	.1	2.6	124	87	39	—
FRENCH CREEK NEAR FRANKLIN, PA. ($1\frac{1}{2}$ miles above mouth)																						
Aug. 5, 1949	660	77	20	7.4	189	4.9	--	.04	.00	25	4.5	6.2	1.9	77	19	4.8	.0	.8	114	81	29	--
FRENCH CREEK AT FRANKLIN, PA.																						
Aug. 5, 1949	660	77	20	7.4	190	4.9	--	.06	.00	25	4.7	4.8	2.4	77	20	4.9	.0	.8	115	82	32	--
SOUTH BRANCH FRENCH CREEK NEAR UNION CITY, PA.																						
Aug. 5, 1949	27	67	15	7.2	222	3.8	--	.13	.00	33	6.1	3.6	2.2	103	22	3.8	.3	2.2	130	107	34	--
LE BOEUF CREEK NEAR WATERFORD, PA.																						
Aug. 5, 1949	35	71	30	6.8	172	6.8	--	.04	.00	26	5.1	1.7	1.5	78	18	2.0	.1	1.5	112	86	28	--
MUDDY CREEK NEAR CAMBRIDGE SPRINGS, PA.																						
Aug. 5, 1949	36	68	10	6.9	160	5.9	--	.19	.00	26	4.6	3.2	1.5	85	15	2.5	.1	1.1	101	84	23	—
CONNEAUTEE CREEK AT DRAKES MILL, NEAR CAMBRIDGE SPRINGS, PA.																						
Aug. 4, 1949	27	76	10	6.9	194	4.3	--	.02	.00	28	5.4	3.3	1.4	90	18	2.8	.1	3.8	120	92	27	—
LITTLE CONNEAUTEE CREEK NEAR CAMBRIDGE SPRINGS, PA.																						
Aug. 4, 1949	26	70	20	7.2	149	4.7	--	.09	.00	20	4.0	1.9	2.1	64	17	1.9	.1	1.8	91	66	21	--
WOODCOCK CREEK NEAR SAGERSTOWN, PA.																						
Aug. 5, 1949	18	73	10	7.4	175	4.0	--	.05	.00	24	4.9	3.4	1.8	80	16	2.6	.1	.8	101	80	34	—
CUSSEWAGO CREEK AT MEADVILLE, PA.																						
Aug. 5, 1949	84	73	50	6.9	124	7.0	--	.47	.00	17	3.3	3.1	2.6	53	14	2.5	.1	1.1	90	66	23	—

MISCELLANEOUS ANALYSES OF STREAMS IN OHIO RIVER BASIN--Continued

Chemical analyses, in parts per million

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ce)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$		Total acidity as H_2SO_4
																				Total	Noncarbonate	
CONNEAUT LAKE OUTLET NEAR CUSTARD																						
Aug. 3, 1949	39	72	25	6.8	195	8.0	--	.04	.00	28	4.9	4.4	2.6	90	17	2.6	.2	.4	122	90	29	--
LITTLE SUGAR CREEK AT COCHRANTON																						
Aug. 3, 1949	10	80	15	8.6	189	5.3	--	.06	.00	27	5.3	3.5	2.3	[a]94	15	2.6	.1	.2	111	89	22	--
SUGAR CREEK AT SUGARCREEK																						
Aug. 3, 1949	58	72	10	8.5	160	6.5	--	.08	.00	22	4.4	3.8	1.7	[a]77	12	3.6	.1	.5	93	73	20	—
MIDDLE FORK OF SUGAR CREEK NEAR BRADLEYTOWN																						
Aug. 3, 1949	11	65	20	7.2	131	7.3	--	.12	.00	17	3.5	3.7	1.9	57	13	1.9	.1	.9	80	57	21	—

[a]Includes smell equivalent of carbonate (CO_3).

POTOMAC RIVER BASIN

CONOCOCHEAGUE CREEK AT FAIRVIEW, MD.

Chemical analyses, in parts per million, year April 1948 to September 1948

Collection	Discharge	Temperature (°F.)	Suspended Sediment	Dissolved Oxygen	Biochemical Oxygen Demand (Five days at 20°C.)	Color	pH	Specific Conductance (Micromhos at 25°C.)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Total hardness as $CaCO_3$
Apr. 14, 1948	2,558	47	—	—	—	1	7.4	180	—	—	—	—	—		77	—	—	—	6.5	—	82
May 5	1,388	54	—	9.7	1.8	20	7.7	206	—	—	—	—	—		93	—	—	—	8.0	—	92
May 11	998	66	—	8.6	.7	5	7.6	236	—	—	—	—	—		111	—	—	—	—	—	102
May 19	1,022	58	—	9.8	1.1	6	7.8	248	—	—	—	—	—		120	—	—	—	—	—	106
May 26	409	65	—	10.2	1.1	4	8.3	285	—	—	—	—	—		144	—	—	—	—	—	129
June 2	432	68	—	10.2	1.0	5	7.4	252	6.2	0.07	36	7.7	3.4		129	14	2.5	0.0	6.4	163	121
June 9	320	66	—	14.2	2.2	10	7.7	262	—	—	—	—	—		148	—	—	—	—	—	129
June 16	226	68	—	8.6	1.2	10	7.7	260	—	—	—	—	—		124	—	—	—	—	—	158
June 23	413	69	—	8.4	.8	10	7.9	254	—	—	—	—	—		82	—	—	—	—	—	169
June 30	1,564	72	—	7.2	1.3	15	7.6	194	—	—	—	—	—		176	—	—	—	—	—	110
July 7	238	72	—	8.9	1.1	5	7.7	310	7.0	.03	46	9.4	3.3		160	16	3.9	.0	8.6	202	152
July 14	169	75	—	8.8	.2	10	8.0	227	—	—	—	—	—		150	—	—	—	—	—	179
July 21	167	76	—	11.3	.6	10	8.1	301	—	—	—	—	—		148	—	—	—	—	—	179
July 28	130	78	—	13.2	1.1	5	8.1	293	—	—	—	—	—		174	—	—	—	—	—	211
Aug. 4	112	70	1	11.3	2.8	5	8.4	331	—	—	—	—	—		176	—	—	—	—	—	207
Aug. 11	112	72	6	17.2	4.4	6	8.3	318	2.4	.06	48	11	3.7		176	17	4.2	.0	6.4	206	165
Aug. 18	108	73	8	17.1	4.5	10	8.4	327	—	—	—	—	—		178	—	—	.0	5.8	—	189
Aug. 25	425	79	8	12.0	2.8	10	8.4	321	—	—	—	—	—		172	—	—	.0	8.4	—	202
Sept. 1	97	73	4	11.8	.4	5	7.0	342	—	—	—	—	—		194	—	—	—	4.5	—	257
Sept. 8	91	78	4	10.6	.7	5	7.3	336	—	—	—	—	—		195	—	—	—	7.2	—	219
Sept. 15	82	72	2	12.7	.0	5	8.1	282	1.2	.10	45	12	4.5		170	19	7.0	.0	3.0	160	162
Sept. 22	88	66	3	12.6	1.8	5	8.2	339	—	—	—	—	—		196	—	—	—	4.2	—	232
Sept. 29	74	61	2	14.2	2.2	5	8.5	315	—	—	—	—	—		181	—	—	—	4.5	—	183

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APRIL 1952

OMMERCE

RAPHS

POTOMAC RIVER BASIN--Continued

CONOCOCHEAGUE CREEK AT FAIRVIEW, MD.--Continued

Chemical analyses, in parts per million, water year October 1948 to September 1949

Date of Collection	Discharge	Temperature (°F.)	Suspended Sediment	Dissolved Oxygen	Biochemical Oxygen Demand (Five days at 20°C.)	Color	pH	Specific Conductance (Micromhos at 25°C.)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Total hardness as $CaCO_3$
Oct. 6, 1948	114	54	4	16	5.4	5	8.5	307	—	—	—	—	—		180	—	--	—	4.3	—	232
Oct. 13	126	55	5	13.6	6.8	7	8.3	297	—	—	—	—	—		170	—	—	—	5.4	—	219
Oct. 20	324	49	12	12.2	3.0	15	7.1	251	5.0	0.14	36	6.0	4.0		90	31	9.0	0.0	6.0	163	115
Oct. 27	110	52	6	15.1	9.1	8	8.4	312	—	—	—	—	—		178	—	--	—	4.7	—	207
Nov. 3	104	50	3	10.8	1.8	5	7.8	343	—	—	—	—	—		196	—	—	—	1.2	—	232
Nov. 10	223	52	6	12	2.4	5	7.8	261	—	—	—	—	—		142	—	—	—	1.4	—	219
Nov. 17	138	46	2	14.6	3.6	5	8.3	286	.4	.09	42	10	9.7		152	20	8.0	.0	2.2	165	146
Nov. 24	700	46	24	9.8	1.9	20	7.8	224	—	—	—	—	—		114	—	—	—	3.6	—	183
Dec. 1	854	41	25	10.6	2.6	5	7.4	222	—	—	—	—	—		100	—	—	—	7.5	—	104
Dec. 8	665	44	12	10.5	1.7	5	7.5	229	—	—	—	—	—		112	—	—	—	5.8	—	110
Dec. 15	406	43	10	10.4	3.1	1	7.7	266	6.0	.09	42	9.2	4.6		150	18	4.0	.0	6.8	167	143
Jan. 5, 1949	1,196	40	28	10.4	3.0	7	7.3	237	—	—	—	—	—		117	—	—	—	7.2	—	119
Jan. 12	1,010	42	23	9.9	1.9	5	7.3	259	—	—	—	—	—		134	—	—	—	8.8	—	147
Jan. 19	586	45	14	10.2	2.2	5	7.6	292	—	—	—	—	—		156	—	--	—	8.2	--	146
Jan. 26	1,290	43	49	10.2	2.7	10	7.7	219	9.0	.19	32	7.3	4.0		108	18	4.0	.1	6.8	132	110
Feb. 9	1,290	41	28	11.2	2.0	5	7.8	231	—	—	—	—	—		116	—	—	—	7.5	—	125
Feb. 16	876	48	24	10.6	1.4	6	7.9	250	—	—	—	—	—		132	—	—	—	6.6	—	140
Feb. 23	1,620	45	79	11.1	2.3	8	7.9	210	2.6	.27	31	5.9	4.8		102	16	4.0	.0	8.5	125	102
Mar. 9	555	44	8	11.2	2.1	5	7.8	275	—	—	—	—	—		144	—	—	—	10	—	131
Mar. 16	425	39	10	12.7	2.9	5	7.8	294	—	—	—	—	—		156	—	—	—	9.1	—	152
Mar. 23	394	56	5	10.7	1.5	5	8.2	281	1.2	.10	44	8.5	6.4		158	15	5.0	.0	9.4	159	145
Mar. 30	308	56	3	12.3	1.7	10	8.1	284	—	—	—	—	—		159	—	—	—	7.1	—	159
Apr. 6	810	48	38	11.1	3.5	5	7.6	262	—	—	—	—	—		136	—	—	—	7.4	—	138
Apr. 13	428	51	23	10.3	3.2	5	7.9	238	—	—	—	—	—		130	—	—	—	6.3	—	129
Apr. 20	596	53	5	12.4	2.2	7	7.8	205	4.6	.17	31	6.0	4.9		106	15	5.0	.1	4.3	119	102
Apr. 27	436	62	8	10.4	1.8	7	8.0	233	—	—	—	—	—		122	—	—	—	5.4	—	109
May 4	475	68	15	9.7	1.9	5	7.6	212	—	—	—	—	—		115	—	—	—	4.7	—	102
May 11	380	58	8	10.8	1.5	5	7.8	237	—	—	—	—	—		130	—	—	—	5.2	—	117
May 18	251	72	12	10.8	1.8	5	8.6	200	2.8	.07	28	8.3	4.4		110	12	4.0	.2	6.8	118	104
May 25	373	63	32	9.5	1.6	8	7.7	225	—	—	—	—	—		112	—	—	—	5.4	—	112
June 1	165	66	8	12.9	1.3	7	8.2	254	—	—	—	—	—		133	—	—	—	7.2	—	117
June 8	145	69	8	14.6	4.0	5	8.4	284	—	—	—	—	—		146	—	—	—	6.1	—	137
June 15	134	76	7	12.4	2.5	8	8.2	293	3.8	.17	45	10	7.7		166	16	4.0	.0	5.8	181	154
June 22	278	77	31	7.8	1.2	10	7.8	220	—	—	—	—	—		112	—	—	—	6.1	—	107
June 29	151	72	9	9.1	.4	5	8.0	258	—	—	—	—	—		142	—	—	—	6.0	—	119
July 6	116	83	12	13	.8	8	8.0	274	—	—	—	—	—		158	—	—	—	5.0	—	138
July 13	956	70	136	8.6	2.8	35	8.3	216	—	—	—	—	—		83	—	—	—	14	—	92
July 20	1,900	76	76	6.6	.8	30	7.4	200	8.2	.31	29	5.6	6.0		100	16	4.0	.1	6.1	135	96
July 27	448	76	26	8.1	1.1	20	7.8	292	—	—	—	—	—		160	—	—	—	8.2	[illegible]	143
Aug. 3	238	79	15	8.7	.2	5	7.9	315	—	—	—	—	—		166	—	—	—	7.8	—	155
Aug. 10	184	79	12	11	1.7	10	8.2	324	—	—	—	—	—		174	—	—	—	6.3	—	166
Aug. 17	151	75	8	10.8	1.2	5	8.3	333	3.0	.10	51	10	4.6		183	15	4.0	.1	8.2	200	168
Aug. 24	136	73	2	12.4	1.4	8	8.2	336	—	—	—	—	—		180	—	—	—	9.4	—	168
Aug. 31	206	71	12	8.4	1.5	15	7.9	252	—	—	—	—	—		129	—	—	—	6.0	—	128
Sep. 7	128	64	4	9.0	.9	5	7.8	352	—	—	—	—	—		194	—	—	—	9.2	—	174
Sep. 14	120	71	6	11	1.2	5	7.7	364	—	—	—	—	—		198	—	—	—	9.6	—	180
Sep. 21	112	63	88	11.5	1.2	15	8.2	332	1.6	.16	49	12	0.3		174	16	5.0	.0	7.2	188	172
Sep. 28	108	63	68	11.6	1.2	10	7.8	339	—	—	—	—	—		186	—	—	—	8.6	—	170

ANTIETAM CREEK NEAR WAYNESBORO, PA.

Chemical analyses, in parts per million, year April 1948 to September 1948

Date of Collection	Discharge	Temperature (°F.)	Suspended Sediment	Dissolved Oxygen	Biochemical Oxygen Demand (Five days at 20°C.)	Color	pH	Specific Conductance (Micromhos at 25°C.)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Total hardness as $CaCO_3$
Apr. 14, 1948	—	46	—	—	—	1	7.8	172	—	—	—	—	—	—	78	—	—	—	4.0	—	81
May 5	—	53	—	10.1	2.1	10	7.6	205	—	—	—	—	—	—	101	—	—	—	9.0	—	88
May 11	376	60	—	9.8	.9	4	7.5	235	—	—	—	—	—	—	113	—	—	—	—	—	114
May 19	143	54	—	10.8	1.3	5	7.8	253	—	—	—	—	—	—	122	—	—	—	—	—	114
May 26	114	52	—	10.2	1.3	5	7.8	274	—	—	—	—	—	—	111	—	—	—	—	—	129
June 2	104	50	—	10.1	1.0	4	7.6	265	7.0	0.04	34	11	3.8	—	138	19	3.5	0.0	8.4	160	130
June 9	90	60	—	10.2	1.2	5	7.6	285	—	—	—	—	—	—	136	—	—	—	—	—	139
June 16	236	62	—	8.6	1.2	5	7.6	290	—	—	—	—	—	—	158	—	—	—	—	—	134
June 23	242	62	—	9.0	1.3	10	8.0	303	—	—	—	—	—	—	156	—	—	—	—	—	135
June 30	149	67	—	8.0	1.1	15	7.6	298	—	—	—	—	—	—	160	—	—	—	—	—	135
July 7	67	67	—	9.1	1.2	5	8.0	289	7.6	.04	38	13	1.6	—	152	14	3.5	.0	9.6	181	148
July 14	87	66	—	8.1	.3	5	7.5	247	—	—	—	—	—	—	122	—	—	—	—	—	108
July 21	66	66	—	10.1	.2	5	7.7	227	—	—	—	—	—	—	116	—	—	—	—	—	97
July 28	60	68	—	10.4	1.6	5	8.0	317	—	—	—	—	—	—	166	—	—	—	—	—	137
Aug. 4	62	64	12	8.6	2.6	5	7.6	284	6.8	.06	45	15	3.4	—	146	16	3.6	.0	11	212	162
Aug. 11	50	66	12	13.9	2.7	7	7.9	343	—	—	—	—	—	—	184	—	—	.0	6.8	—	174
Aug. 18	46	65	12	10.0	4.4	15	8.0	346	—	—	—	—	—	—	184	—	—	.0	9.2	—	180
Aug. 25	56	68	12	10.0	2.2	15	8.0	361	—	—	—	—	—	—	193	—	—	—	10	—	187
Sept. 1	47	61	4	10.6	1.1	2	7.4	361	—	—	—	—	—	—	201	—	—	—	9.8	—	207
Sept. 8	48	68	6	9.5	.9	3	8.0	359	—	—	—	—	—	—	209	—	—	—	8.8	—	219
Sept. 15	40	61	5	10.4	.0	3	7.9	337	4.0	.10	53	17	—	—	199	28	5.0	.1	9.2	207	222
Sept. 22	45	59	12	10.6	1.2	5	7.7	359	—	—	—	—	—	—	202	28	—	—	9.2	—	227
Sept. 28	48	57	10	10.6	1.4	5	8.1	352	—	—	—	—	—	—	197	—	—	—	9.0	—	219

RAPHS

OMMERCE

APRIL 1952

PYP712.17/9
[no. 24]

#24

POTOMAC RIVER BASIN--Continued

ANTIETAM CREEK NEAR WAYNESBORO, PA.--Continued

Chemical analyses, in parts per million, water year October 1948 to September 1949

Date of Collection	Discharge	Temperature (°F.)	Suspended Sediment	Dissolved Oxygen	Biochemical Oxygen Demand (Five days at 20°C.)	Color	pH	Specific Conductance (Micromhos at 25°C.)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Total hardness as $CaCO_3$
Oct. 6, 1948	138	52	44	10.2	3.7	15	7.1	183	—	—	—	—		—	88	—	—	—	5.5	—	183
Oct. 13	53	52	8	10.9	3.4	5	7.8	323	—	—	—	—		—	190	—	—	—	6.0	—	219
Oct. 20	69	50	7	11.6	2.1	10	7.5	391	3.4	0.09	47	12		8.9	186	15	9.0	0.0	8.5	207	167
Oct. 27	54	49	6	13.4	10.1	5	8.0	345	-	—	—	—		—	206	—	—	—	6.8	—	257
Nov. 3	54	50	3	11.5	2.3	5	7.7	352	—	—	—	—		—	208	—	—	—	6.4	—	207
Nov. 10	91	53	14	10.6	1.6	5	7.6	269	—	—	—	—		—	166	—	—	—	5.8	—	196
Nov. 17	64	48	5	11.7	2.1	5	7.8	326	3.6	.06	45	15		1.3	162	17	6.0	.0	3.7	187	174
Nov. 24	90	47	8	10.9	2.6	5	7.9	292	—	—	—	—		—	168	—	—	—	3.5	—	244
Dec. 1	118	42	10	11.4	3.0	5	7.5	264	—	—	—	—		—	142	—	—	—	8.2	—	110
Dec. 8	123	42	8	11.0	1.9	5	7.5	257	—	—	—	—		—	138	—	—	—	7.2	—	116
Dec. 15	132	43	22	10.0	3.2	1	7.4	256	5.5	.05	35	11		3.9	146	8.4	4.0	.0	8.8	168	133
Jan. 5, 1949	280	43	100	9.6	2.9	10	7.1	246	—	—	—	—		—	128	—	—	—	7.8	—	146
Jan. 12	446	40	22	9.8	1.5	8	7.5	267	—	—	—	—		—	140	—	—	—	7.5	—	134
Jan. 19	165	47	29	9.7	2.0	8	7.4	297	—	—	—	—		—	162	—	—	—	9.8	—	183
Jan. 26	240	44	120	10.2	4.2	15	7.4	257	7.0	.16	35	11		3.3	128	19	6.0	.1	7.8	150	133
Feb. 9	214	43	24	11.2	2.0	5	7.7	276	—	—	—	—		—	150	—	—	—	8.2	—	152
Feb. 16	229	47	32	10.7	1.8	7	7.9	246	—	—	—	—		—	132	—	—	—	7.2	—	143
Feb. 23	254	46	31	11.2	2.3	6	7.8	239	2.0	.05	32	9.7		5.4	124	15	5.0	.0	9.1	135	120
Mar. 9	151	43	17	12.0	2.0	5	7.9	297	—	—	—	—		—	155	—	—	—	12	—	131
Mar. 16	129	38	14	13.5	2.9	5	8.0	307	—	—	—	—		—	166	—	—	—	11	—	147
Mar. 23	126	54	10	11.0	2.1	2	8.1	286	3.4	.12	40	12		7.4	164	14	6.0	.0	10	164	149
Mar. 30	111	52	11	12.0	2.0	8	8.1	307	—	—	—	—		—	166	—	—	—	11	—	121
Apr. 6	168	47	22	11.2	3.0	5	7.7	214	—	—	—	—		—	110	—	—	—	8.6	—	107
Apr. 13	132	51	12	10.1	2.4	5	7.7	266	—	—	—	—		—	146	—	—	—	9.2	—	135
Apr. 20	143	49	12	13.4	2.6	5	7.8	233	4.6	.10	32	9.5		3.9	124	13	4.0	.0	8.4	133	119
Apr. 27	140	57	21	10.2	2.0	5	7.8	238	—	—	—	—		—	130	—	—	—	7.6	—	121
May 4	122	65	20	10.8	3.1	5	7.7	247	—	—	—	—		—	134	—	—	—	8.6	—	123
May 11	112	53	14	11.6	1.6	5	7.7	246	—	—	—	—		—	132	—	—	—	8.4	—	114
May 18	93	65	12	11.7	1.7	5	8.0	268	3.4	.10	37	12		4.1	150	14	4.0	.1	9.2	147	142
May 25	97	57	18	10.4	1.6	8	7.7	251	—	—	—	—		—	138	—	—	—	7.4	—	131
June 1	75	59	4	11.6	1.2	7	7.7	283	—	—	—	—		—	168	—	—	—	11	—	142
June 8	63	60	9	11.3	2.1	5	7.9	316	—	—	—	—		—	180	—	—	—	12	—	164
June 15	61	70	8	9.9	1.8	10	7.8	310	4.6	.16	43	14		4.3	182	12	4.0	.0	9.2	190	165
June 22	72	69	18	8.9	1.6	3	7.7	290	—	—	—	—		—	161	—	—	—	9.2	—	140
June 29	67	65	14	8.8	1.1	6	8.2	289	—	—	—	—		—	160	—	—	—	8.4	—	142
July 6	52	70	12	10.3	1.6	5	7.5	325	—	—	—	—		—	186	—	—	—	11	—	159
July 13	378	66	104	6.3	1.5	35	7.0	130	—	—	—	—		—	56	—	—	—	4.4	—	51
July 20	416	66	56	7.8	.4	20	7.2	187	6.4	.22	24	7.1		5.6	94	15	3.0	.1	5.8	125	90
July 27	172	67	23	9.1	1.0	15	7.7	272	—	—	—	—		—	150	—	—	—	7.6	—	133
Aug. 3	130	68	17	9.7	.9	10	7.8	302	—	—	—	—		—	161	—	—	—	11	—	159
Aug. 10	105	70	13	10.7	1.7	7	8.0	321	—	—	—	—		—	175	—	—	—	9.4	—	173
Aug. 17	86	68	12	10.1	2.1	5	8.1	326	5.0	.11	45	14		4.5	180	18	3.0	.1	11	195	170
Aug. 24	77	65	16	9.4	1.2	7	7.8	339	—	—	—	—		—	182	—	—	—	12	—	176
Aug. 31	81	64	24	9.2	1.4	15	7.9	315	—	—	—	—		—	168	—	—	—	11	—	158
Sep. 7	72	59	13	9.3	1.3	7	7.5	339	—	—	—	—		—	184	—	—	—	11	—	180
Sep. 14	218	65	118	7.7	2.7	30	7.1	178	—	—	—	—		—	83	—	—	—	6.0	—	82
Sep. 21	76	56	16	10.1	1.1	10	7.9	320	1.4	.22	43	14		1.5	170	14	3.0	.0	12	183	165
Sep. 28	81	60	7	10.3	1.3	10	7.6	315	—	—	—	—		—	168	—	—	—	12	—	158

MONOCACY RIVER AT BRIDGEPORT, MD.

Chemical analyses, in parts per million, year April 1948 to September 1948

Date of Collection	Discharge	Temperature (°F.)	Suspended Sediment	Dissolved Oxygen	Biochemical Oxygen Demand (Five days at 20°C.)	Color	pH	Specific Conductance (Micromhos at 25°C.)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Total hardness as $CaCO_3$
Apr. 14, 1948	1,260	45	—	—	—	1	6.8	128	—	—	—	—		—	36	—	—	—	3.5	—	54
May 5	425	56	—	9.5	1.5	30	7.2	137	—	—	—	—		—	45	—	—	—	2.5	—	54
May 11	162	69	—	8.2	1.1	7	7.0	132	—	—	—	—		—	39	—	—	—	—	—	48
May 19	120	60	—	8.6	1.0	23	7.2	351	—	—	—	—		—	55	—	—	—	—	—	60
May 26	74	68	—	7.0	1.2	9	7.6	173	—	—	—	—		—	63	—	—	—	—	—	66
June 2	67	69	—	7.3	1.1	19	6.9	136	9.6	0.03	14	4.7		3.3	43	19	2.5	0.0	3.6	92	54
June 9	35	70	—	7.5	1.2	15	7.0	135	—	—	—	—		—	54	—	—	—	—	—	73
June 16	63	72	—	6.2	2.0	15	7.0	140	—	—	—	—		—	42	—	—	—	—	—	80
June 23	71	71	—	6.9	1.4	25	7.4	155	—	—	—	—		—	48	—	—	—	—	—	110
June 30	52	80	—	5.6	1.0	20	7.4	140	—	—	—	—		—	42	—	—	—	—	—	92
July 7	48	75	—	6.0	1.4	30	7.4	145	9.8	.35	16	4.8		3.7	46	18	3.5	.0	7.8	104	60
July 14	21	78	—	5.3	.3	20	7.2	150	—	—	—	—		—	48	—	—	—	—	—	98
July 21	17	76	—	6.2	.2	20	7.1	140	—	—	—	—		—	58	—	—	—	—	—	98
July 28	28	77	—	5.4	2.4	20	7.1	162	—	—	—	—		—	62	—	—	—	—	—	89
Aug. 4	167	74	185	6.5	2.2	30	7.1	158	—	—	—	—		—	58	—	—	—	—	—	104
Aug. 11	17	78	38	8.2	2.0	23	6.9	156	11	.11	16	5.1		5.4	51	21	3.8	.0	4.5	108	61
Aug. 18	12	72	28	8.8	2.6	15	7.5	162	—	—	—	—		—	68	—	—	.0	.6	—	116
Aug. 25	44	74	84	6.4	3.0	90	6.9	150	—	—	—	—		—	52	—	—	.0	4.4	—	170
Sept. 1	10	70	22	6.9	.7	10	6.9	176	—	—	—	—		—	71	—	—	—	2.4	—	183
Sept. 8	8.2	72	22	6.6	.6	10	7.4	195	—	—	—	—		—	82	—	—	—	.8	—	146
Sept. 15	7.1	68	19	7.0	1.0	7	7.2	190	.8	.11	29	8.1		4.4	84	32	5.5	.0	.5	119	101
Sept. 22	5.4	66	26	6.6	1.4	5	7.5	201	—	—	—	—		—	92	—	—	—	.6	—	146
Sept. 29	5.2	61	18	8.3	1.6	5	7.7	215	—	—	—	—		—	94	—	—	—	.6	—	146

APRIL 1952
COMMERCE
GAPHS

POTOMAC RIVER BASIN--Continued

MONOCACY RIVER AT BRIDGEPORT, MD.--Continued

Chemical analyses, in parts per million, water year October 1948 to September 1949

Date of Collection	Discharge	Temperature (°F.)	Suspended Sediment	Dissolved Oxygen	Biochemical Oxygen Demand (Five days at 20°C.)	Color	pH	Specific Conductance (Micromhos at 25°C.)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Total hardness as $CaCO_3$
Oct. 6, 1948	16	—	19	9.2	2.3	5	7.5	210	—	—	—	—	—		100	—	—	—	0.6	—	159
Oct. 13	14	55	18	8.0	3.2	15	6.8	214	—	—	—	—	—		82	—	—	—	2.2	—	183
Oct. 20	43	49	18	9.8	2.2	15	7.5	218	4.4	0.08	22	4.3	15		76	24	12	0.0	1.7	125	73
Oct. 27	12	49	10	8.6	4.5	20	6.9	199	—	—	—	—	—		78	—	—	—	4.9	—	183
Nov. 3	12	50	11	7.6	1.8	5	7.0	214	—	—	—	—	—		88	—	—	—	3.9	—	196
Nov. 10	452	50	28	10.4	2.1	15	6.9	189	—	—	—	—	—		48	—	—	—	5.6	—	134
Nov. 17	65	45	6	11.0	1.6	15	7.1	205	8.2	.14	21	7.3	7.8		55	38	10	.0	1.2	130	83
Nov. 24	226	—	10	9.8	2.1	25	6.8	172	—	—	—	—	—		50	—	—	—	4.3	—	134
Dec. 1	310	38	10	11.2	0.0	15	7.0	152	—	—	—	—	—		33	—	—	—	3.9	—	85
Dec. 8	210	42	9	10.4	3.0	15	6.9	154	—	—	—	—	—		38	—	—	—	3.2	—	92
Dec. 15	118	41	5	10.6	4.7	1	7.2	162	8.0	.05	20	6.3	2.0		50	29	4.0	.0	4.2	100	76
Jan. 5, 1949	268	37	12	11.2	4.3	10	6.7	142	—	—	—	—	—		32	—	—	—	4.5	—	58
Jan. 12	192	40	2	10.5	2.2	8	6.9	134	—	—	—	—	—		35	—	—	—	3.8	—	87
Jan. 19	116	40	8	11.0	2.5	10	7.0	148	—	—	—	—	—		46	—	—	—	3.4	—	87
Jan. 26	484	41	21	10.9	3.4	25	7.5	141	11	.28	15	5.2	5.4		38	28	5.0	.1	3.8	99	60
Feb. 9	528	38	22	11.6	2.8	9	7.1	127	—	—	—	—	—		36	—	—	—	4.2	—	55
Feb. 16	542	49	36	10.4	2.4	7	7.1	139	—	—	—	—	—		46	—	—	—	3.0	—	63
Feb. 23	734	42	59	11.2	2.6	8	7.2	137	3.6	.38	14	4.6	5.6		40	25	5.0	.0	4.5	91	57
Mar. 9	92	40	4	11.6	2.4	8	7.2	148	—	—	—	—	—		49	—	—	—	2.7	—	71
Mar. 16	71	36	12	13.0	2.9	7	7.2	154	—	—	—	—	—		50	—	—	—	2.2	—	67
Mar. 23	94	52	9	10.5	1.9	5	7.3	167	4.0	.21	18	5.5	6.8		56	25	6.0	.0	3.0	98	68
Mar. 30	56	55	4	9.0	1.6	8	7.2	171	—	—	—	—	—		64	—	—	—	1.5	—	81
Apr. 6	1,130	42	155	10.4	4.5	25	7.1	148	—	—	—	—	—		51	—	—	—	3.6	—	67
Apr. 13	81	52	1	9.3	1.7	10	7.4	148	—	—	—	—	—		54	—	—	—	1.2	—	67
Apr. 20	204	49	6	11.0	2.4	25	7.3	137	9.8	.43	16	4.6	4.6		46	24	4.0	.1	1.7	92	60
Apr. 27	101	60	6	9.1	1.5	15	7.5	138	—	—	—	—	—		52	—	—	—	1.3	—	62
May 4	172	66	26	7.0	2.4	30	7.0	135	—	—	—	—	—		50	—	—	—	2.1	—	53
May 11	120	53	10	8.2	1.9	15	7.1	153	—	—	—	—	—		60	—	—	—	2.2	—	57
May 18	48	67	18	6.7	1.1	7	7.6	152	4.2	.10	18	5.6	4.8		62	19	4.0	.2	2.2	89	68
May 25	70	63	43	7.3	1.6	15	7.1	165	—	—	—	—	—		66	—	—	—	4.7	—	66
June 1	24	64	9	9.0	2.3	8	7.4	167	—	—	—	—	—		73	—	—	—	2.1	—	70
June 8	15	67	10	6.9	0.5	7	7.5	168	—	—	—	—	—		74	—	—	—	.8	—	65
June 15	11	76	16	6.1	2.0	15	7.4	175	2.8	.09	20	6.4	6.8		80	18	4.5	.0	.6	100	76
June 22	21	79	12	5.4	1.4	10	7.4	141	—	—	—	—	—		58	—	—	—	1.3	—	54
June 29	14	74	22	4.6	1.4	15	7.4	172	—	—	—	—	—		70	—	—	—	1.8	—	65
July 6	7.6	81	9	6.2	1.2	10	7.2	158	—	—	—	—	—		72	—	—	—	.8	—	62
July 13	1,950	70	161	7.2	3.4	70	6.6	122	—	—	—	—	—		26	—	—	—	11	—	44
July 20	416	77	16	6.8	0.2	35	7.0	138	12	.18	15	4.8	6.3		43	24	5.0	.2	4.4	104	58
July 27	68	80	9	6.7	0.9	30	7.2	134	—	—	—	—	—		52	—	—	—	1.8	—	50
Aug. 3	41	78	35	5.0	0.5	25	7.2	139	—	—	—	—	—		52	—	—	—	1.8	—	51
Aug. 10	19	80	14	6.0	0.9	15	7.2	149	—	—	—	—	—		63	—	—	—	.8	—	57
Aug. 17	15	81	23	7.3	2.4	15	7.6	173	2.4	.08	19	5.3	5.5		72	14	5.0	.1	.3	100	69
Aug. 24	11	74	12	8.0	3.0	15	7.5	166	—	—	—	—	—		67	—	—	—	.2	—	65
Aug. 31	27	75	14	7.0	2.0	25	7.5	144	—	—	—	—	—		60	—	—	—	.2	—	59
Sep. 7	8.8	68	16	5.8	1.8	20	7.1	163	—	—	—	—	—		63	—	—	—	1.6	—	62
Sep. 14	8.2	68	7	6.5	2.1	15	7.0	169	—	—	—	—	—		66	—	—	—	1.1	—	67
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Sep. 28	7.6	62	16	8.2	1.6	10	7.1	182	—	—	—	—	—		74	—	—	—	1.2	—	70

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Information on the quality and quantity of water in Pennsylvania can be obtained from the following sources -

Chemical Character of Surface Waters

1. Pennsylvania Department of Commerce
   State Planning Board
   Room 129 Capitol Building
   Harrisburg, Pennsylvania

Sanitary Quality of Water

2. Pennsylvania Department of Health
   Bureau of Sanitary Engineering
   534 South Office Building
   Harrisburg, Pennsylvania

Ground Water Supplies

3. Pennsylvania Department of Internal Affairs
   Bureau of Topographic and Geologic Survey
   603 South Office Building
   Harrisburg, Pennsylvania

Stream Flow Records

4. Pennsylvania Department of Forests and Waters
   Bureau of Waters, Division of Hydrography
   489 Education Building
   Harrisburg, Pennsylvania

Precipitation Records

5. United States Weather Bureau
   Harrisburg State Airport
   New Cumberland, Pennsylvania

SELECTED PUBLICATIONS OF THE PENNSYLVANIA STATE PLANNING BOARD

Publication No.

*1—Preliminary Report. 682 pages. 152 charts, December, 1934.

*10—Drainage Basin Study. 3 vols., 611 pages, 1937.

15—Recent Industrial Trends and New Employment Opportunities in Pennsylvania.

16—Retail Trade in Pennsylvania, 1946.

17—Industrial Utility of Water in Pennsylvania. Chemical Character of Surface Water, 1944 to 1946, 1947.

18—The Pennsylvania Zoning Primer (Revised), 1948.

19—Local Powers for Community Development, 1948.

20—A Pennsylvania Recreation Manual, 1949.

21—Planning and Zoning Powers and Procedures in Pennsylvania, 1949. Vol. 1. (Townships of the Second Class, Counties, Regions.)

22—Planning and Zoning Powers and Procedures in Pennsylvania, 1950. Vol. 2. (Cities, Boroughs, First Class Townships.)

These publications may be seen in representative public libraries. A limited number of those listed are available for distribution until the present supply is exhausted. Those marked with an asterisk are now out of print.

The following issues of **Pennsylvania Planning** are still available.

Local Tax Rates, May-June, 1940.

Community Self-Appraisal (Revised Edition), April, 1942.

Planning and Zoning Progress in Pennsylvania, July, 1942.

Population, October, 1942.

Handicrafts in Post-War Planning, May, 1943.

Plastics, July, 1943.

Air Photographs, February, 1944.

Light Metals and Stainless Steel, August, 1944.

Topographic Mapping Needs, February, 1945. (For limited technical distribution.)

Community Action for Local Self Development, July, 1945.

Conservation, August, 1945.

Forest Resources, November, 1946.

Soil Conservation, September, 1947.

Minerals Conservation, December, 1948.

Know Your Pennsylvania, September, 1949.

Comparative County Data, August, 1950.

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Pennsylvania State Library
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AERIAL PHOTOGRAPHS AS TAX MAPS

PENNSYLVANIA DEPARTMENT OF COMMERCE

STATE PLANNING BOARD

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STATE PLANNING BOARD
DEPARTMENT OF COMMERCE
HARRISBURG, PENNSYLVANIA

AERIAL PHOTOGRAPHS AS TAX MAPS

Many counties are planning to use aerial photography for tax assessment purposes as suggested in Act 594 of the 1951 Legislative Session. The Act declares that the Board for the Assessment and Revision of Taxes in counties of the fourth, fifth, sixth, seventh and eighth class shall have the power and it shall be its duty to "Establish a permanent system of records consisting of tax maps, property record cards and property owners' index ...." "(1) Tax maps of the entire county drawn to scale or aerial maps, which maps shall indicate all property and lot lines, set forth dimensions or areas, indicate whether the land is improved and identify the respective parcels or lots by a system of numbers or symbols and numbers whereby the ownership of such parcels and lots can be ascertained by reference to the property record cards and the property owners' index." The Act authorizes the Board, which is composed of the county commissioners, to appoint a Chief Assessor and other staff employees and to enter into such contracts as may be necessary to establish the Permanent Record System.

The State Planning Board has prepared the following outline for the information of county commissioners, as to the present status of the air photography program, methods for utilizing aerial maps or photographs for tax maps and suggestions concerning the collection and recording of data.

Methods and suggestions contained in this outline are based upon fifteen years of aerial photograph usage, including close cooperation with the several counties of Pennsylvania which have used aerial photographs in various phases of tax assessment work.

I. Utilization of Aerial Photographs

Aerial photographs taken by mapping cameras can be used for preparing tax assessment maps. The average sized county would require several hundred separate overlapping photographs. For tax map purposes,

such photographs may be used in any of three different ways -

(1) Line maps may be constructed from aerial photographs.

(2) The separate air photographs may be fitted together and then rephotographed as a composite or mosaic.

(3) The separate photographs, enlarged to a convenient scale and with the enlarging done with particular care as to accuracy (referred to as "ratioed" enlargements), may be used as tax maps and property lines drawn directly upon them.

Each of these three methods of use is presented in more detail in the next three paragraphs of this memorandum.

II. Drafted Line Maps

The drafting of accurate base maps from aerial photographs requires the use of complex plotting instruments. Although there are several general types of instruments available, they all use stereo-pairs of aerial photographs which are projected to form three-dimensional models of the area. These projected models are viewed in the optical system of the instrument. A floating dot in the optical system can be moved around the model and, through a mechanical linkage a pencil or pen traces its movements upon a sheet of drawing paper. The property boundaries, highways and other data can be transferred from the optical model to the drawing paper at the desired scale to form a line map. Most of the plotting instruments require special aerial photographs designed for the instrument which is being used.

There are several organizations in Pennsylvania which specialize in the preparation of maps from aerial photographs. These organizations, using the plotting instruments and skilled technical personnel necessary, can draft accurate tax assessment maps. The plotting instruments used are complex and expensive. Most organizations schedule their use for many months adhead and they are commonly used from 15 to 24 hours each day. All of the various phases of the mapping are carried on by them under controlled conditions. The tax maps are delivered complete in every detail. Such services, however, are costly and many counties may feel that they cannot afford to have the job done in this manner.

Some engineers or surveyors may be interested in undertaking the construction of tax maps for counties. If the tax maps are to be based on aerial photographs they would probably contract with an aerial photographic company to perform certain phases of the mapping work. Such an arrangement could produce a satisfactory end result, but the accuracy attainable would probably be considerably less than would be secured through concentrating the responsibility in one firm which was equipped with the complex equipment referred to above. A county should obtain expert technical advice before contracting for tax maps with organizations which are not experienced in all phases of the work.

Counties entering into contracts for the preparation of tax maps should know what the completed tax maps will cost them, how accurate they will be, exactly what services the contractor will perform, the names and facilities of all subcontractors and what portions of the over-all job will remain to be done by county employees.

In general, because of the high cost involved, the preparation of drafted line maps from aerial photographs is not recommended for tax map purposes.

III. Aerial Photograph Mosaics

The fitting together of portions of the photographs to form a single composite or mosaic is a tedious task and also requires the use of special equipment. Each individual print must be tailor-made to fit a certain predetermined spot and developed to the proper tone. The mosaic is built up in rectangular sections and each one fits tightly against adjoining sections. Mosaics for tax assessment maps decrease the number of prints required but the different shadow lengths and shadow directions on each section often makes the interpretation of detail difficult.

Although mosaics serve many useful purposes, their use for tax assessment maps is not usually recommended.

IV. Ratioed Enlargements

Ratioed enlargements at suitable scales can be used as tax assessment maps, particularly for rural and suburban areas. As is indicated in later portions of this memorandum, they may be supplemented by block and lot maps or special large-scale aerial photographs in urban portions of the county.

The use of ratioed enlargements is, in most cases, recommended as the most economical and satisfactory means of securing tax maps in accordance with the requirements of Act 594 of the 1951 Legislative Session. The remainder of this memorandum is largely devoted to the methods of securing and utilizing such ratioed enlargements for this purpose.

V. Photographs Presently Available

State-wide aerial photography first became available in 1938-1939 as the result of a cooperative State-federal program sponsored by the State Planning Board. Some of this early photography has been used by County Commissioners as the basis for tax maps with satisfactory results and at a very moderate cost. However, during the intervening years extensive changes in land-use have made this first photography obsolete in many areas. Accordingly, a second cooperative program was instituted and is now nearing completion.

These modern aerial photographs are now available at reasonable cost for all but 14 counties. These 14 counties, originally photographed in 1938-1939, will be rephotographed this year under the current cooperative State-federal program. A list of counties, the dates when they were photographed and other pertinent data are contained in Appendix A.

VI. Type of Photography

For most counties panchromatic photography was used for the present State-federal program of aerial photography. This is the same type of film as is ordinarily used for amateur and news photographs. In counties which are largely forested, and in which there is a large proportion of evergreen trees, infra-red film was used. The infra-red film separates the various shades of green so that forest types can be recognized on the prints. Highways, water, wet spots and shadows all appear very dark on photographs printed from infra-red film. For tax assessment maps they are not so good as panchromatic photographs, although they are usable.

All of the new photography is taken upon 9 x 9 inch negatives, each covering an area approximately 15,000 feet square. The scale of the negatives is approximately 1:20,000 which is 12 inches equal 20,000 feet or

one inch equals 1,667 feet.

The photographs are taken in rows running from north to south. They overlap each other 65 per cent at the top and bottom (north and south) and 30 per cent at the sides (east and west). The 65 per cent overlap provides stereo pairs (for use in stereoscopes for study of topography). Full physical coverage (non-stereo) may be obtained from alternate prints in each row.

Precise mapping cameras are used for this photography. Lenses are calibrated by the U. S. Bureau of Standards. The focal length of the lenses approximates 8¼ inches, so that the planes must fly 13,750 feet above the mean elevation of the county in order to maintain the proper scale

VII. Accuracy of Photography

Despite the fact that the cameras, planes, and equipment used are as near perfect as can be made, and the personnel using them are highly skilled, the resulting photographs are never entirely accurate in scale. In every photograph there are small errors which for most purposes can be disregarded, as well as scale differences, angular differences and displacement of images which may be of greater concern.

The scale of any object on the photograph depends upon its distance from the lens of the camera. The closer the object is to the lens, the larger its scale will be on the photograph. Thus the scale on top of a mountain will be larger than in a valley. On every photograph there will be a different scale for each elevation of the ground.

Even a slight amount of tilt in the camera at the time of exposure results in angular differences which affect the scale at various

points of the photograph.

An object such as a silo when directly underneath the camera will appear to have the top directly above the bottom but if the silo is at one side of the photograph, the top of the silo will be displaced and appears to be farther from the center of the photograph than the bottom of the silo.

However, elevation, tilt and displacement can all be determined and corrections applied so that areas and distances can be computed with a high degree of precision. Distances and areas can be measured directly upon ratioed enlargements with sufficient accuracy to provide a check upon deed descriptions. These measurements may be further refined by computing corrections for elevation and tilt.

VIII. Identification of Photographs

The photographs are taken so that the top is toward the North. Each photograph and enlargement contains an identifying symbol and number in the upper right corner. The print symbol and number is made up of three separate parts. The first three letters identify the county; the next number and letter identifies the roll of film and the last number the print on that roll, (AQS 3F-182). The print numbers in each row follow in sequence from north to south or from south to north depending upon the direction of the plane's flight. The date appears in the upper left corner.

Except when ordering complete county coverage, prints and enlargements are ordered by their identifying symbols and numbers.

IX. Photo Index Sheets

Photo index sheets which show the proper relative position occupied by each photograph are available and must be acquired to facilitate the use of the aerial photographs. In appearance, they resemble rough mosaics. For the newer photography the number required for each county varies from one

to seven.

The photo index sheets are made by photographing assemblies of the contact prints. The prints are laid out and stapled to large boards with the upper right corner of each prints, containing the print number, visible. (See Figure I).

The photo index sheets are made on 20 by 24 inch paper. For most of the counties photographed recently, they are at a scale of 1 inch equals nearly one mile (1:62500). This is the same scale as most of the United States Geological Survey Topographic Maps.

In a few instances, where an entire county is contained on a single photo index sheet, the scale is less than one inch equals one mile.

The first and last photographs in each row on the photo index sheets contain the time of day at which the photograph was made.

X. Recommended Scales for Aerial Photography

Ratioed enlargements at a scale of one inch equals 660 feet have proved satisfactory for tax assessment purposes in rural areas. At this scale each square inch represents approximately ten acres. Enlargements at this scale are usually made upon 27 x 28 inch paper, which is about as large as can be filed conveniently or used in the field. Enlargements at a scale of one inch equals 400 feet provide more room for recording data on the smaller plats, buttheir size, 40 inches square makes them difficult to file or use in the field. Unless a county has facilities for using and filing enlargements at a scale of one inch equals 400 feet, it is recommended that ratioed enlargements at a scale of one inch equals 660 feet be used. The use of this scale for rural areas does not prevent a county from obtaining enlargements at one inch equals 400 feet or one inch

PORTION OF PHOTO INDEX SHEET

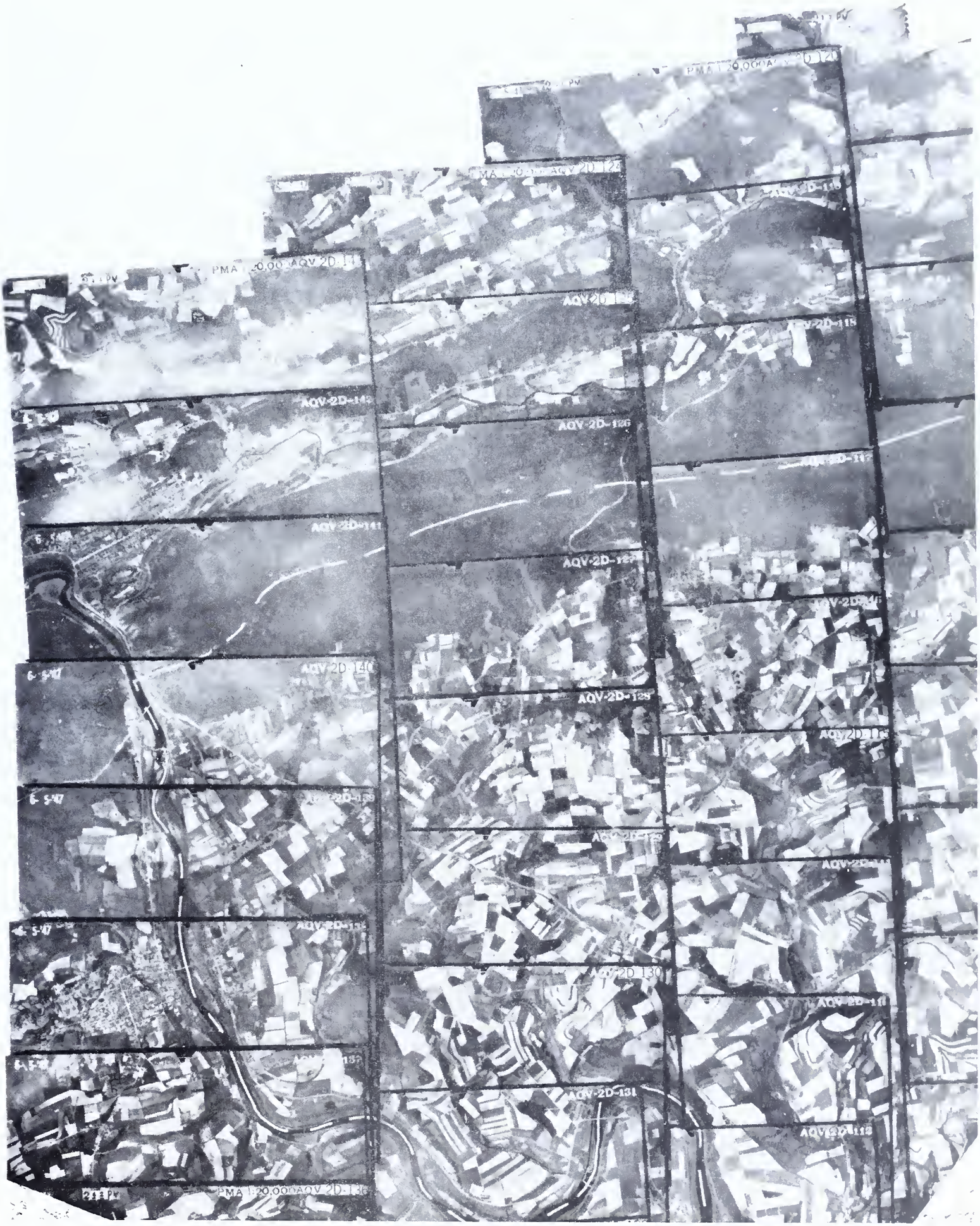


FIGURE I

equals 200 feet for selected suburban areas. These can be made from existing photography.

Figure II shows a portion of a ratioed enlargement at a scale of 1 inch equals 660 feet.

For urban areas, requiring scales larger than one inch equals 200 feet, either special aerial photographs or block and lot plan maps should be used.

Aerial photographs or mosaics at a scale of one inch equals 50 feet are satisfactory for urban areas. There are several companies in Pennsylvania specializing in large scale precision photography.

Most cities and many boroughs have official block and lot maps at scales of one inch equals 100 feet or larger which may be used for tax assessment maps.

Maps such as Sanborn Maps, which are used by most fire insurance agents, are available for cities, boroughs and other urban areas. These can be used as a base for tax assessment maps.

XI. Ordering Aerial Photographs

Counties which plan to use aerial photographs as tax maps should determine what scale will best serve their needs. If a scale of 1 inch equals 660 feet is suitable for most of the county that is the scale which should be ordered. These can be supplemented later by larger scale photographs for selected areas, but a saving of about twenty per cent in the cost of enlargements can be obtained by ordering county coverage at one scale.

Photographs must be ordered from the Aerial Photographic and Engineering Service, Production and Marketing Administration, U. S. Department of Agriculture, Washington, D.C. (For price list and instruction see last two pages of Appendix A).

PORTION OF AERIAL PHOTOGRAPH USED AS A TAX MAP

TAX DISTRICT 17; MAP #AHF-2F-158

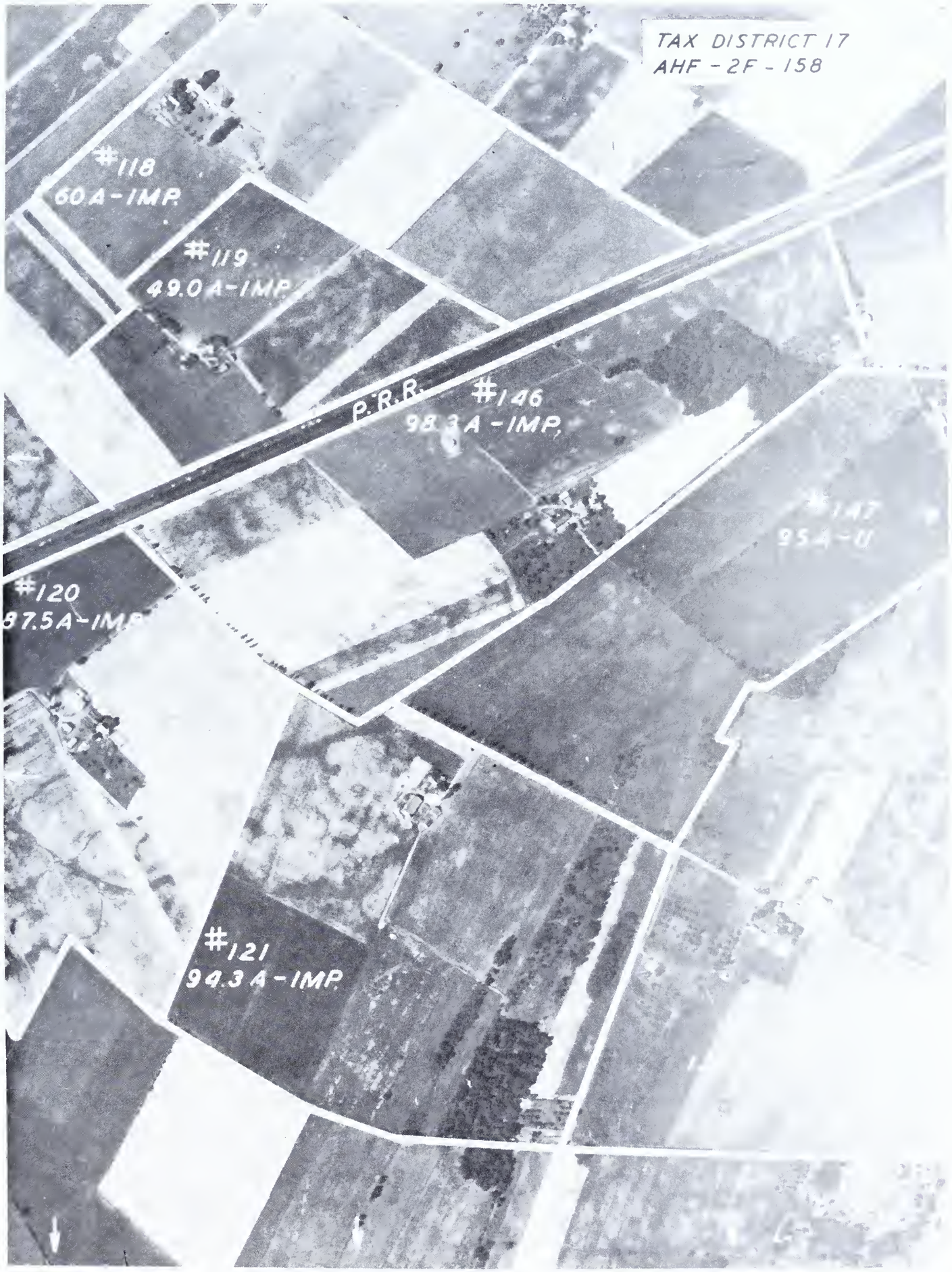


FIGURE II

SCALE 1" = 660'

Each county will need

(A) One set of ratioed enlargements at a scale of one inch equals ____ feet of alternate prints for county coverage. (See Appendix A for the number of enlargements required.)

(B) One set of Photo Index Sheets. (See Appendix A for number required).

(C) Ratioed enlargements of certain selected photographs at scales larger than ordered under "A". These can be selected and ordered at a later date.

(D) It is very desirable that a county should have an additional set of ratioed enlargements at a scale of 1 inch equals 660 feet for field use in order to protect the record set from hard wear and possible loss.

A set of contact prints of alternate photographs can be used in the field instead of enlargements but they are not nearly as useful as the enlargements.

For County coverage, ratioed enlargements at a scale of one inch equals 660 feet cost $1.45 each and at the scale of one inch equals 400 feet $2.70 each. Contact prints cost 45 cents each, and photo index sheets $1.10. (See price list following Appendix A).

Photo index sheets may be enlarged upon 40 by 40 inch paper. These enlargements are desirable for counties covered by a single photo index sheet; they cost $5.10 each.

Under normal proceedure the United States Department of Agriculture requires payment at the time an order is placed for aerial photographs. In many cases it is difficult for a county to issue a check for prepayment. Special arrangements have been made by the State Planning Board to permit counties faced with this difficulty to have the United State Department of

Agriculture bill them for the photographs after the order has been filled. Such orders should contain a statement explaining that prepayment is not possible under existing county regulations.

The prices for prints of this cooperative photography approximates the actual cost of making them in large quantities by a government agency. Prints purchased from commercial organizations are necessarily much more expensive.

XII. Preparation of Photographs for Use

Enlargements of the Record set should be stamped upon the back with a rubber stamp indicating that they are official records of the Board for the assessment and Revision of Taxes, and with such other data as the Board desires. If a field set is procured it likewise should be properly identified.

The enlargements should not be trimmed. The white border surrounding the print acts as a bumper and absorbs wear and tear which otherwise would deface the prints after a few years of use.

The enlargements may be edged with plastic tape which protects them. The tape with a device for its application may be obtained from office supply stores.

The numbers of the adjoining prints may be lettered on the white margins on all four sides close to the photograph, as an aid in using them.

City, borough and township limes should be drawn upon the photo index sheets with a reasonable degree of accuracy. Township names and the township key number or symbol should be lettered upon the photo index sheets, as well as city and borough names. Village names, highway route numbers, stream names and other desired names can be cut out of a map and fastened to the photo index sheets under small pieces of transparent Scotch tape. The

photo index sheets should provide a complete visual index of the county, so that the proper enlargements or tax maps can be selected within a few seconds after the area has been located on the photo index sheet.

XIII. Filing System

A systematic filing system should be devised for tax maps which will permit ready finding of any desired map by reference to its designating number or symbol and number. In developing this filing system it is suggested that full consideration be given to the fact that the map filing system should be keyed in with the property record card filing system, and therefore each aspect of the use of the property record card should be considered in designing the filing systems for maps and property record cards, as well as for the property owners' index cards.

In general, it is probably desirable in all cases that the tax map files and the property record card files be so designed as to recognize the division of the county into townships, boroughs and cities, and perhaps in urban areas the division of the municipalities into wards, and perhaps districts within wards.

If enlargements of existing State-Federal aerial photographs are used as tax maps, it should be noted that identifying symbols and numbers have already been assigned to each photograph. This identification system may be used as the basis for the county tax map identification system.

Suitable files should be provided for the tax maps which will protect them from dirt and damage, yet will permit ready reference to them. Various types of filing equipment may be purchased or built (drawers, shelves, hanging racks, books, etc.) and the type selected will be influenced in part by the type and size of maps utilized.

Maps and Photographs should be kept flat at all times. Once rolled it is almost impossible to straighten an aerial photograph. When they are kept in drawers or on shelves, a piece of masonite or similar hardboard should be kept on top of each stack.

One convenient form of a file for enlargements and tax maps is shown on Figure III.

The case is a dust-proof cabinet framed with hardwood with hardboard panels. The top is flat and hinged at the back. Along each side of the cabinet near the top is a hauch rail from which a number of tempered hardboard hangers can be suspended by their shoulders.

The hardboard hangers should be about two inches larger than the enlargements or tax maps.

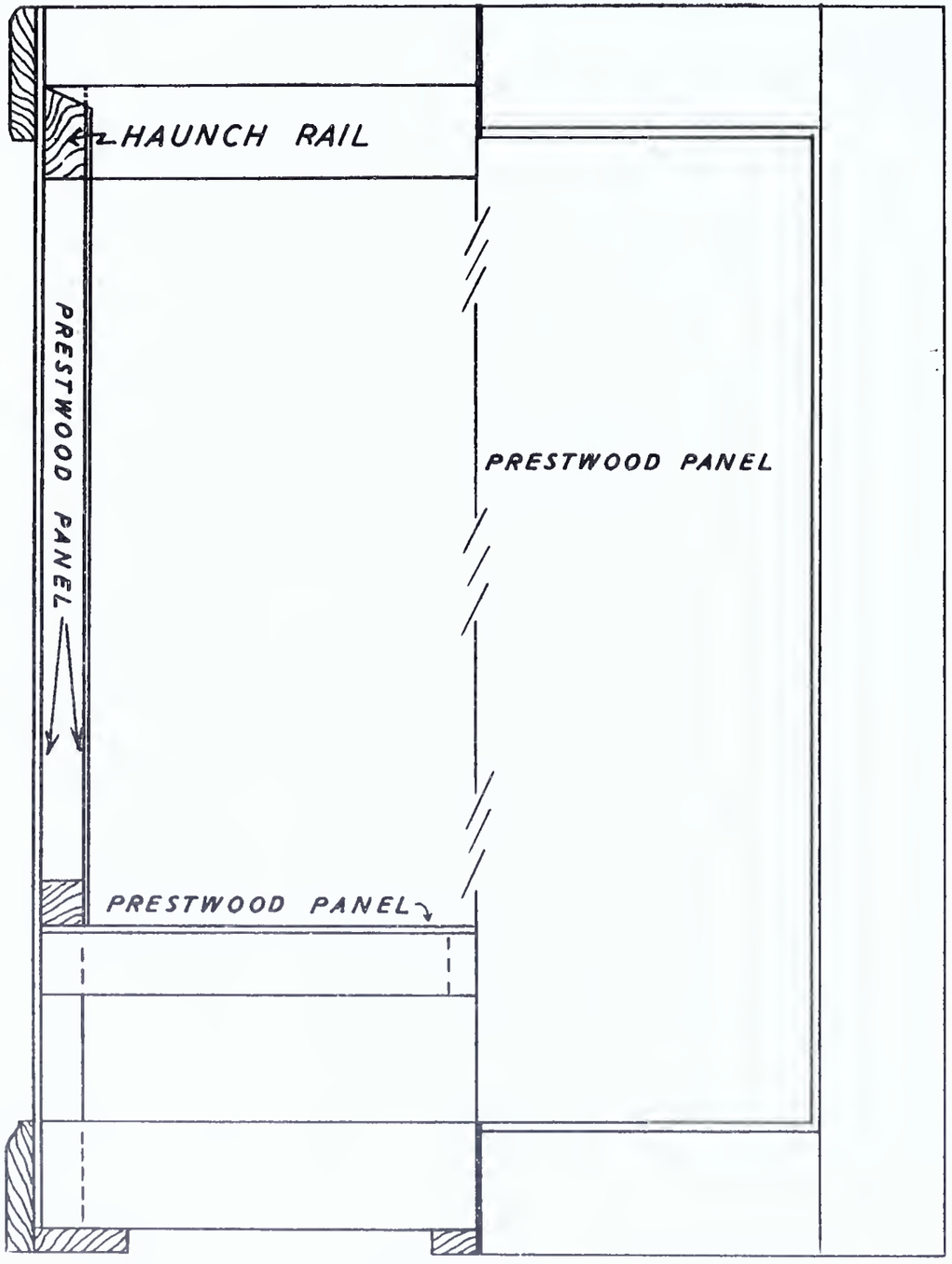
Ten or more enlargements can be fastened on each board with spring clips. These clips, such as "Ideal" binder clips number 50, should be used only on the top. A heavy elastic band can be used near the bottom.

The case should be built half an inch wider than the hangers so that they may be moved freely back and forth along the haunch rails.

One cabinet the same depth as a standard filing case, 28 inches, will accommodate up to 400 enlargements with 30 hangers. For a smaller number of enlargements the same sized case should be used but fewer hardboard hangers will be required.

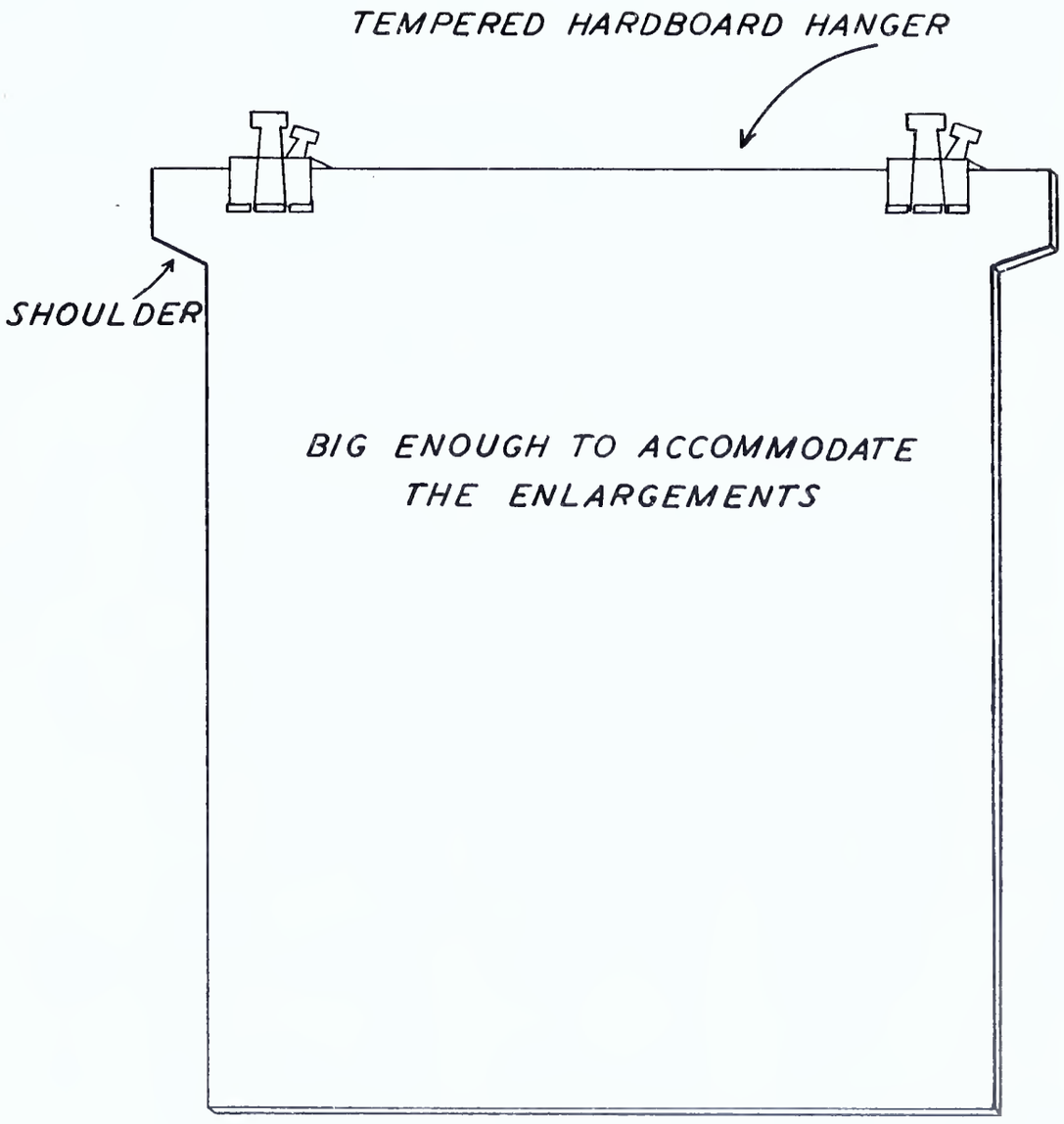
XIV. Indexing System

All photographs should be indexed by means of a visual system so that prints may be selected and removed from the files quickly. The record set of photographs should be keyed to the property record cards and to the property owners index. Certain data must be placed upon the photo index



FRONT VIEW

FIGURE III



10 OR MORE ENLARGEMENTS ARE
CLIPPED TO THE TOP OF THE BOARD

ENLARGEMENT FILE

sheets, the photographs, the property record cards and the ownership file so that they can be used together with the least amount of lost motion or delay.

It is required that each property be identified by a system of numbers or symbols and numbers whereby the ownership of each parcel or lot can be ascertained by reference to the property record cards or the property owners' index card.

Each map and each photograph must have a number of symbol which can be recorded on the property record card and property owners index card. Each property must likewise have a number which can be recorded on the tax map or aerial photograph and upon the property record card and property owners index card.

One system of indexing the aerial photographs would be to designate the western row with the letter A, proceeding row by row eastwardly to the eastern row in alphabetical order. Prints at the top of the row would be given the number 1, the next lower ones 2 etc, proceeding downward to the southern row in numerical order. The fourth print from the top of the third row would be designated "C 4".

Maps where used could be keyed into the system in several ways. Maps covering a portion of the same area as covered by photograph "C 4" would be designated with a symbol such as 18 - C 4 indicating that it is map number 18 as indicated on photograph C 4. These Index numbers would have to be placed upon the ratioed enlargements and other prints used and upon the photo index sheets.

However, the film roll and print numbers which are already on the aerial photographs may be used to identify them. Print AQS 3F-182 could be

identified on the property record card and the property owners index as 3F-182.

Property numbers must be assigned for each property. These numbers should follow an orderly pattern. A separate series may be used for each taxing district or for each ratioed enlargement or tax map. Probably the least complex method is to use a separate series for each tax map and photograph. Regardless of the system used, each property would have a compound number or symbol; the first portion to designate the tax map or photograph and the second part to designate the property upon that particular map or photograph. A symbol or number designating the taxing district might be prefixed to this compound number.

XV. Collection of Data

The chief assessor or persons employed by the county collect the property data. The collection of data pertaining to a farm or other property should be effected in the presence of the owner or tenant whenever possible. When this cannot be done, the information obtained should be checked by the owner or his agent.

All data placed on the field set of photographs should be entered with colored china-marking pencils, such as "Blaisdell 169-T", which is bright red. Lines drawn with this kind of pencil do not make ridges in the photographs and can be erased completely with artgum or removed with a swab of cotton dipped in carbon-tetrachloride. The china marking pencils make rather heavy lines so that if property boundaries do not follow lines visible on the photographs, notations may be necessary to locate the line in the office.

The usual procedure is to outline the property, with red pencil, write in the owner's name or number it with a temporary number and place the

same number on the form used for collecting data for the property record card. If the property contains several classes of land, these should be indicated on the photograph by subdividing the outlined property into the different classes using a green or blue china marking pencil. The class of land should be noted on each.

Other data may be placed on the photograph with pencils of other colors. These may include paved highways, springs, streams, etc., which influence the assessment. All data placed upon the photographs should be keyed into the tabulated data contained on cards, forms, or notebook pages. Notations should be made of the name of the person collecting the data, whether it was collected in the presence of the owner, tenant, or agent, or whether it was checked by the owner or his agent.

In many counties the United States Department of Agriculture has outlined boundaries of cooperating farms on similar photographs for its various farm conservation and crop control programs. Many of these photographs are at the offices of the County Agricultural Conservation Associations of the Production and Marketing Association.

The offices of the Association are usually in the County seat. The Chairman of the Production and Marketing Administration for Pennsylvania has assured the State Planning Board that these county offices will cooperate with county officials in providing information such as the farm boundaries, areas, etc.

Where difficulty is experienced in locating the boundaries of forested property upon the photographs, landmarks may often be recognized which may be used as reference points when the property boundaries are plotted and scaled upon the photograph by the county engineer or technical employees.

XVI. Verification of Data

Before property boundaries are transferred from the field set of photographs to the record set, the data should be checked against the deed description. This need not entail the plotting of the property lines from the deed description except in cases where discrepancies are obvious.

Where discrepancies are discovered, the property lines should be carefully plotted. If the deed description is faulty, the owner should be notified and the description corrected in the manner provided by law. This may require a resurvey.

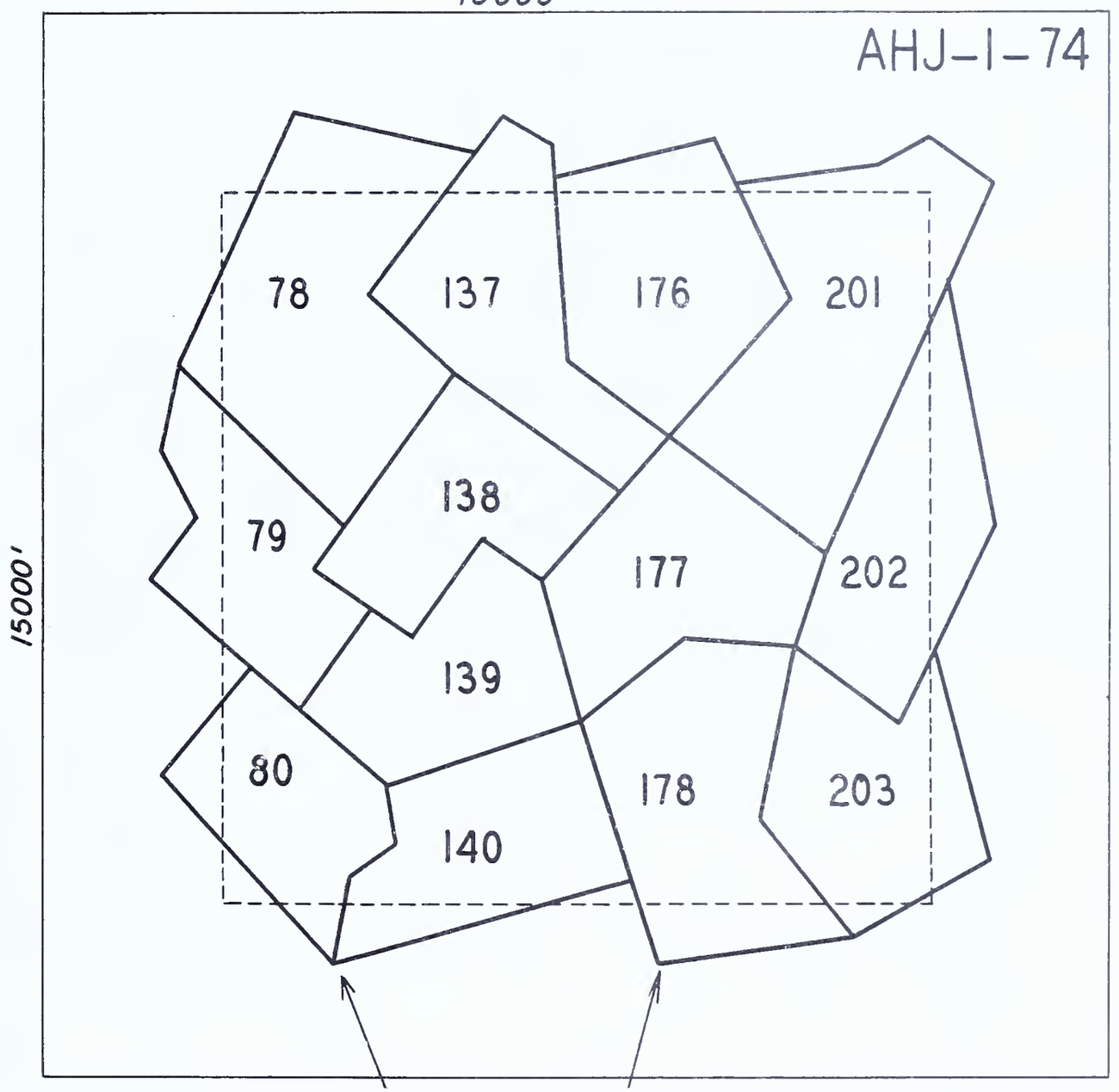
After the property boundaries have been verified, a notation stating the name of the person verifying them and the date should be made and attached to the other data. All of the data should be sent to the person who is recording them on the official record photographs.

XVII. Selecting "Plotting Zones" on the photographs

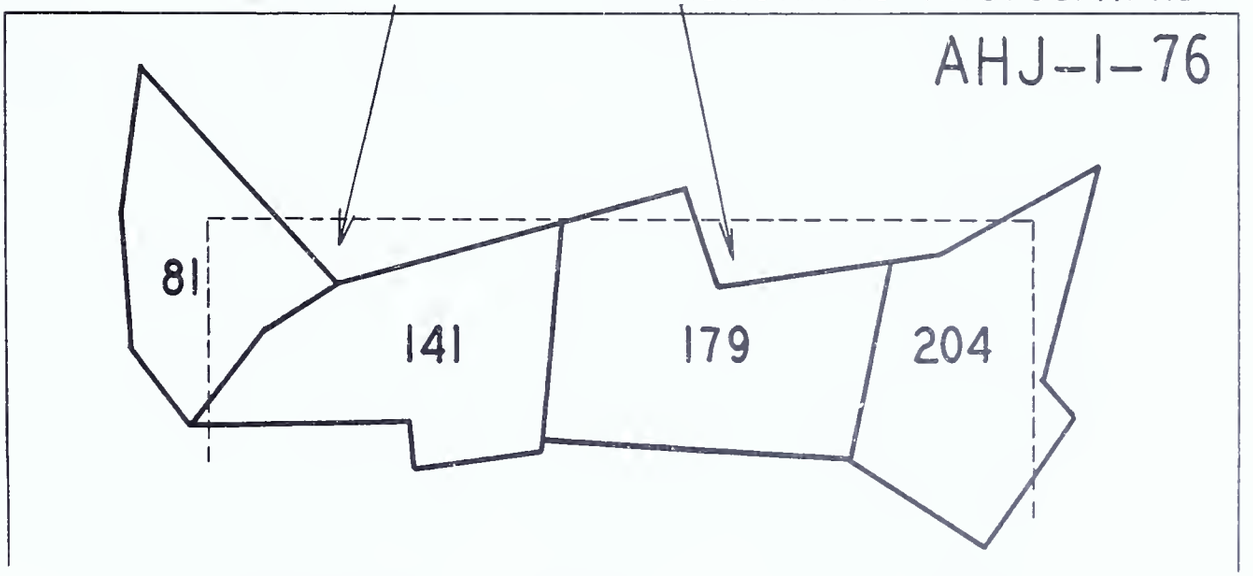
Under normal procedure it is not necessary to plot properties to the very edges of each print. Although each enlargement covers an area of some 15,000 feet square, the net area covered by each print is reduced by the overlapping portions of the prints adjoining it. This net area is the central portion of each print, approximately two miles square. This central portion will be referred to as the normal "plotting zone" (see Figure IV). This zone may be outlined on the enlargements with a china-marking pencil, though some persons may prefer to use imaginary lines.

All properties which lie entirely or largely within this "plotting zone" should be recorded upon the enlargement. All properties which do not have their major portion within the plotting zone are usually plotted on the adjoining enlargement upon which most of their area will be contained in a "plotting zone".

"PLOTTING ZONES"
FOR
RECORDING PROPERTIES



NOTE: BOUNDARY LINES SHOULD BE IDENTICAL ON ADJOINING PHOTOGRAPHS



-------BOUNDARY OF NORMAL "PLOTTING ZONE"

FIGURE IV

In cases of extensive forest acreages and other large land-holdings it will sometimes be necessary to record the property in sections upon two or more photographs. In such a case boundary lines between sections should be natural features visible on the photographs where possible.

Figure IV shows a schematic plan of a plotting zone of an enlargement with the properties outlined and numbered. Below this diagram the top section of the next alternate print is indicated.

Referring to the illustration, Properties 78, 79, 80, 138, 139, 140, 176, 177, 178, 201, 202 and 203 are recorded on print AHJ 1-74. In each case, half or more of each of these properties falls within the normal "plotting zone".

On photograph AHJ 1-76, which is south of it, Properties 81, 141, 179 and 204 are shown. The northern boundary lines of these four properties extend to the southern boundaries of properties 80, 140, 178 and 203. For checking purposes the southern line of property boundaries on photograph AHJ 1-74 would be outlined upon tracing paper. The paper with its outline would be moved down to the top of photograph AHJ 1-76, where it should fit the northern boundaries of the properties plotted upon that photograph. Each boundary would be checked with the proper adjoining print.

XVIII. Recording Data on Photographs

After the data have been verified, they should be placed upon the photographs with colored ink or dye. Unverified data should be penciled in with colored pencil until such time as they are verified.

The record set of enlargements should have the plot boundaries, areas or dimensions, property numbers and notations as to whether or not the property is improved placed upon them in a neat and orderly manner in a way

which will not obscure the photographs. This record set is an official record and must be treated as such.

Permanent brilliant colored inks or dyes should be used. Liquid water colors such as Dunne's Lantern Slide Colors, Wold Air Brush Colors, or transparent drawing inks should be used. Air brush colors are made in two types, the water-resistant, alcohol-soluble colors being preferable.

Pens such as "Wrico" lettering pens, Number 6 or Number 5 are suitable for drawing property lines. These pens hold a drop of ink or dye and draw lines of uniform width. Regular two-blade drafting pens may be used.

Property numbers should be assigned in an orderly geographic arrangement. If a property is later subdivided, each portion may retain the original number, plus a letter, A B C etc. In assigning numbers each property should be included regardless of whether or not it is tax exempt.

All properties should be plotted upon their proper enlargement or tax map. If a line map has been drawn or a fire insurance map is utilized to cover an area contained on a ratioed enlargement, that area should be outlined on the photograph and properly referenced.

After all property boundaries have been placed upon the enlargement together with other data required by the Act, every property which has its major portion within the "plotting zone" should be outlined. Each outlined property should contain a property number. An unnumbered property may be one that has not been recorded.

Adjoining enlargements must be cross checked carefully, as indicated in Section XVII, after properties have been recorded to insure that no property has been overlooked.

XIX. Measuring and Scaling Upon Aerial Photographs

Although ratioed enlargements have been corrected for over-all scale discrepancy, they are not true maps, and are not entirely true to scale. Variations in scale due to the difference in elevation of various parts of the area photographed can be calculated and the photographs scaled with a high degree of accuracy.

Every effort has been made to have the ratioed enlargements accurate enough so that if corrections are made for elevations, they can be scaled to within one-half of one per cent in distance and to within one per cent in area.

The photographs have been checked in several ways for making ratioed enlargements. The most reliable way is by field checking. In field checking, measurements are made upon the ground and compared with distances scaled upon the photographs, making allowances for elevation. Usually only every third or fifth photograph is checked and ratios for the intervening photographs are computed. Most of the ratioed prints in agricultural areas are field checked.

In waste-land and in forested areas, where it was difficult to measure lines upon the ground which could be located accurately upon the photographs, other methods of checking and scale determination were used. Ratios for enlargements made of such areas are usually corrected for the average scale over a number of prints, rather than for each print. Ratioed prints of these large forested areas are not as accurate as ratioed prints of farm lands.

In plotting data upon the photographs, corrections must be made for differences in elevation, and occasionally for tilt of photographs, etc.

This is a technical procedure which can be done by a surveyor or engineer who has received some instructions in photogrammetric methods. A special bulletin on this subject will be prepared by the State Planning Board.

Acreages on the ratioed enlargements can be measured by a planimeter, an instrument costing less than one hundred dollars (See Figure V). The measurements obtained by this method must likewise be corrected for scale due to the differences in elevation, tilt of the photograph etc. However, planimetered areas on the ratioed prints in most cases will not vary more than five per cent from the correct areas, so that properties may be checked by this method for gross discrepancies. By measuring several visible field boundaries on each photograph, and comparing the measured distances with the scaled distances, planimetered areas can be adjusted to within one per cent error. The special bulletin noted above will outline this technical procedure.

Areas on the ratioed enlargements at a scale of 1 inch equals 660 feet can be checked with a piece of cross-section paper having 10 divisions per inch. A piece of this semi-transparent paper can be placed over the property on the enlargement, the squares covering the property counted, and the area in acres computed by dividing by ten.

XX. Standards of Workmanship

The chief assessor and his staff are the persons designated to establish the permanent tax assessment system. Their task is a specialized one, requiring certain training and abilities. Personnel for the various positions should be selected carefully.

Recording of the data is a technical or semi-technical job. It is a task for young eyes. Good eyesight alone is however, not sufficient; a high degree of visual acuity is required. The person selected for this position should have an understanding of surveying, be a neat draftsman, and

PLANIMETER

USED FOR MEASURING AREAS

FIGURE V

be a real "plugger". His entire time should be assigned to work on the record set of photographs.

It would probably cost more to establish the system with a mediocre staff than with a competent staff. A competent staff will reduce the amount of friction between the Board of Assessment and the tax payers, produce more accurate assessments, and better quality tax maps at the lowest possible cost to the county and the tax payers.

APPENDIX A

(Cooperative Aerial Photography)

Number of Aerial Photographs Required for Physical Coverage by Alternate Prints

(For Non-Stereo Use)

	Date Photographed	Type**	Number of Index Sheets	Alternate Prints Required
Adams	1949		1	158
Allegheny	1949		4	224
Armstrong	1949		5	200
Beaver	1951		1	127
Bedford	x			305*
Berks	1947		5	250
Blair	x			160*
Bradford	z	Infra-red		325*
Bucks	1950		5	200
Butler	1951		4	225
Cambria	x			205*
Cameron	z	Infra-red		120*
Carbon	1950		1	132
Centre	1951	Infra-red	6	321
Chester	1947		6	232
Clarion	1951		4	170
Clearfield	1951	Infra-red	6	325
Clinton	1951	Infra-red	7	250
Columbia	1950		3	161
Crawford	1950		6	265
Cumberland	1947		5	165
Dauphin	1950		4	176
Delaware	1945	Special	-	---
Elk	1951		5	225
Erie	1950		6	218
Fayette	1951		4	233
Forest	1951		3	125
Franklin	1949		4	237
Fulton	x		-	130*
Greene	1951		1	169
Huntingdon	x			270*
Indiana	1949		4	241
Jefferson	1951		4	170
Juniata	1949	Infra-red	4	133
Lackawanna	1950		1	166

Note: * Estimated

	Date Photographed	Type**	Number of Index Sheets	Alternate Prints Required
Lancaster	1947		5	288
Lawrence	1950		1	115
Lebanon	1950		3	115
Lehigh	1947		4	115
Luzerne	1950		5	279
Lycoming	1951	Infra-red	7	333
McKean	1951		4	261
Mercer	1951		1	194
Mifflin	1950	Infra-red	4	136
Monroe	z	Infra-red		190*
Montgomery	1950		4	160
Montour	1950		1	54
Northampton	1947		4	121
Northumberland	1947		4	162
Perry	1949	Infra-red	5	181
Philadelphia	1945	Special	-	---
Pike	z	Infra-red		175*
Potter	z	Infra-red		320*
Schuylkill	1947		5	228
Snyder	1950	Infra-red	1	103
Somerset	x			325*
Sullivan	1951	Infra-red	1	130
Susquehanna	z	Infra-red		250*
Tioga	z	Infra-red		340*
Union	1951	Infra-red	1	101
Venango	1950		4	181
Warren	1950		4	246
Washington	1951		4	246
Wayne	z	Infra-red		225*
Westmoreland	1949		6	300
Wyoming	1949		1	127
York	1947		6	257

Note: *Estimated

** Type - Panchromatic unless noted

x - New photographs will be available about August 1952 (1938-1939 photographs are currently available)

z - New photographs will be available about December 1952 (1938-1939 photographs are currently available)

Special - Negatives owned by Aero Service Corporation, Philadelphia (Prices quoted by them upon request)

1937-1939 Photographs are available for all counties

PENNSYLVANIA AERIAL PHOTOGRAPHY

(Photographed in cooperation with the United States Department of Agriculture)

Vertical Aerial Photographs of every part of the State are available. Certain counties are being rephotographed. By the end of 1952 photography taken since 1945 will be available for 65 counties through the State-Federal cooperative program. Photography for the other two counties (Philadelphia and Delaware) is available from another source. Information concerning the date of the latest photography and the print numbers covering a specific area will be furnished by the Pennsylvania State Planning Board, Room 129 Capitol Building, Harrisburg, Pennsylvania.

Recent photographs are on 9 x 9 inch negatives, at an approximate scale of 1 inch = 1667 feet. Earlier photographs were on 7 x 9 inch negatives at an approximate scale of 1 inch = 1667 feet.

OVERLAP

The photographs overlap each other 65 per cent at the top and bottom (north and south) and 30 per cent at the sides (east and west). The 65 per cent overlap provides stereo pairs. Full physical coverage (non-stereo) may be obtained from alternate prints in each row.

TYPE

Most of the photography is on panchromatic film which is the type usually used for general photography. Certain counties which are predominately forested are photographed on infra-red film. Infra-red photography emphasizes differences in the green tones, and aids in identifying various species of forest cover. Prints made from the infra-red film are not as clear cut as one the usual type; shadows and wet spots appear very black.

CONTACT PRINTS are the same size as the negatives. They are usually made upon double weight semi-matte finish paper but will be furnished on single weight glossy paper if requested.

ENLARGEMENTS: Enlargements at various scales up to 1 inch equals 400 feet may be obtained. For recent panchromatic photography enlargements of one quarter of a negative to a scale of 1 inch equals 200 feet can be made.

RATIOED ENLARGEMENTS are corrected for over-all scale measurements; they should be specified for all cases where greater accuracy is required.

PHOTO INDEX SHEETS: These index sheets show the position of each individual print. They measure 20 x 24 inches. In appearance, they resemble rough mosaics. For the newer photography they are at a scale of 1:62,500 or 1 inch equals nearly 1 mile. Most of the index sheets for the older photography are at a scale of 2 inches equals one mile. The number required for each county varies.

April 1, 1952

PRICE LIST OF AERIAL PHOTOGRAPHS
Cooperative State-Federal Aerial Photography Program

CONTACT PRINTS: Price each, on double weight semi-matte paper or single weight weight glossy. Specify which. (9 x 9 inch)

QUANTITY	PRICE EACH
1 to 100	$ .65
Over 100	.50
County Coverage*	.45

ENLARGEMENTS: These should be ordered by the scale desired. The cost of enlargements is based upon the size of sheet required to accommodate the the approximate scale requested. The size required for commonly used scales are:

1 inch equals 1,320 feet - 14 x 14 inches
1 inch equals 1,000 feet - 16 x 20 inches
1 inch equals 660 feet - 27 x 28 inches
1 inch equals 400 feet - 40 x 40 inches

NOTE: - 1 square inch = 10 acres at scale of 1 inch = 660 ft.

THE PRICE OF ENLARGEMENTS

SIZE	1 to 5	6 to 100	Over 100	Quantity County Coverage*
14 x 14 inches	$ 1.70	$ 1.10	$ 1.00	$ .90
16 x 20 inches 18 x 22 inches	2.00	1.65	1.45	1.20
22 x 27 inches 27 x 28 inches	2.25	1.90	1.70	1.45
40 x 40 inches	5.10	3.80	3.20	2.70

Enlargements at a scale of 1 inch equals 200 feet can be made from each quarter negative of the newer photography. These are made on 40 x 40 inch paper and cost $1.00 more than the prices for regular 40 x 40 inch enlargements.

*County coverage may be either full stereoscopic coverage, or coverage by alternate prints of each row.

PHOTO INDEX SHEETS: $1.10 per sheet.

The number required for each county varies.

ORDERING PHOTOGRAPHS: All prints and enlargements are made in Washington, D.C. They must be ordered by their identifying print numbers. Orders should be addressed to the Aerial Photographic and Engineering Service, Production and Marketing Administration, Washington, D.C. A check for the full amount payable to the Treasurer of the United States should be included. Approximately thirty days are required for filling orders.

nsylvania State Library
DOCUMENTS SECTION

AN ECONOMIC BACKGROUND FOR REGIONAL PLANNING IN THE ANTHRACITE COUNTIES

STATE PLANNING BOARD
PENNSYLVANIA DEPARTMENT OF COMMERCE

HARRISBURG
1952

PYP712.17/9
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AN

ECONOMIC BACKGROUND

FOR

REGIONAL PLANNING

IN THE

ANTHRACITE AREA

- - - -

COMMONWEALTH OF PENNSYLVANIA
STATE PLANNING BOARD
DEPARTMENT OF COMMERCE
Harrisburg
1952

- -

Tables, charts and other data used in this survey are based upon:

1. The Annual Report of the Pennsylvania Department of Mines.

2. Reports of the Bureau of Statistics and the Bureau of Topographic and Geologic Survey of the Department of Internal Affairs.

3. Reports of the U. S. Bureau of the Census -Hazleton-Wilkes-Barre Standard Metrcpolitan Area and the Scranton Standard Metropolitan Area.

4. "Comparative County Data"; "Pennsylvania Anthracite"; and "Industrial Quality of Water," (publications of the State Planning Board of the Pennsylvania Department of Commerce.)

5. "Pennsylvania, a Regional Geography," and "An Area Analysis - Pennsylvania Anthracite Region," by Raymond E. Murphy.

6. "The Anthracite Forest Region," Northeastern Forest Experiment Station.

7. "The Forest Situation - Carbon and Schuylkill Counties," and "The Forest Situation - Lackawanna and Luzerne Counties," Northeastern Forest Experiment Station, Forest Service, U. S. Department of Agriculture.

8. "Pennsylvania Anthracite as a Metallurgical Fuel," H. J. Rose, Mellon Institute of Industrial Research.

9. U. S. Census of Agriculture.

THE ANTHRACITE AREA OF PENNSYLVANIA

INTRODUCTION

The anthracite producing area of Pennsylvania is concentrated in the northeastern part of the State. The region contains approximately 3,508 square miles or 8% of the area of the Commonwealth. Of this territory, only the 2,550 square miles which are included in Lackawanna, Luzerne, Carbon and Schuylkill counties will be considered in the present summary.

In the main the topography of the area is rugged. Its northern part is formed by a deeply eroded tableland known as the Appalachian Plateau. Most of the higher ground of this section is rocky and infertile but many of the gullies and valleys are covered by a thick, rich mantle of soil, and all of the area was at one time heavily forested.

Anthracite is the major mineral resource in this four county area. It is believed that the original reserves were 19,480,000,000 tons. Of these, 6,874,000,000 tons are believed to be still recoverable by present mining practices. This is estimated to be sufficient anthracite to supply the market at present rates of consumption for 155 years.

The table below is a break-down of the original reserves and the estimated recoverable coal by counties. It will be noticed that a higher percentage of the available coal in Lackawanna and Luzerne counties has been mined out than in Schuylkill, though this latter county had the largest original content and still has the largest reserves. This is due to the fact that Lackawanna, Luzerne and Carbon counties have comparatively flat beds which are easily mined, whereas Schuylkill county has highly faulted and broken seams.

TABLE I

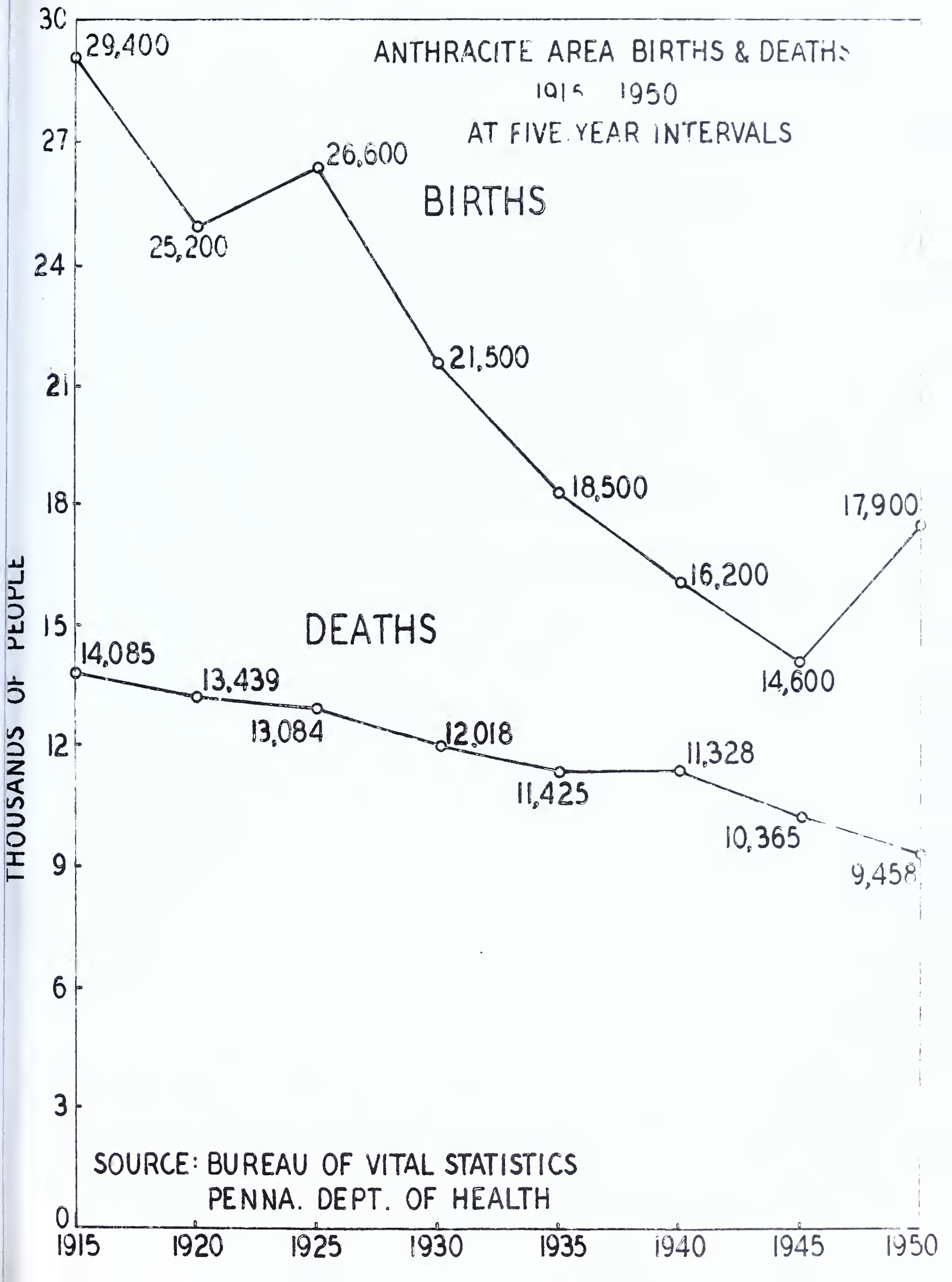
Estimated Reserves of Anthracite

	Millions of Net Tons				
	Total	Carbon	Lacka-wanna	Luzerne	Schuyl-kill
Original Content	19,480	620	2,200	4,560	12,100
Estimated Coal Exhausted	6,872	298	1,621	2,689	2,264
Estimated Coal Left (1950)	12,608	322	579	1,871	9,836
Estimated Coal Recoverable	6,639	177	388	1,254	4,820
Percent Recovery	60	55	67	67	49
Life In Years	150	71	46	57	427

Pennsylvania's Mineral Heritage, Department of Internal Affairs, Bureau of Geologic and Topographic Survey.

Of the other hard coal counties, Northumberland is one of the larger producers but only 4,000 out of its approximately 20,000 workers are employed in mining. The majority of the labor force is engaged in the textile and metal products industries. Columbia and Dauphin counties now produce only a minor part of the annual output of anthracite and their mine workers represent only a small percentage of the total employment.

The anthracite counties of Pennsylvania have produced over the years, mineral wealth valued at many billions of dollars. Because Pennsylvania anthracite was the first mineral fuel produced in America, its stimulus to the industries of our young nation was of tremendous importance. For a long time the extraction of hard coal from under Pennsylvania's hills provided the principal employment in


ANTHRACITE AREA BIRTHS & DEATHS
1915 1950
AT FIVE YEAR INTERVALS
BIRTHS
DEATHS
29,400
25,200
26,600
21,500
18,500
16,200
14,600
17,900
14,085
13,439
13,084
12,018
11,425
11,328
10,365
9,458
THOUSANDS OF PEOPLE
30
27
24
21
18
15
12
9
6
3
0
1915
1920
1925
1930
1935
1940
1945
1950
SOURCE: BUREAU OF VITAL STATISTICS
PENNA. DEPT. OF HEALTH

the northeastern section of the State. Toward the close of the 19th Century, however, the competitive fuels, bituminous coal, oil and natural gas, each with its special properties and uses, had seriously challenged anthracite's dominance as a source of industrial fuel. For the past 30 years those fuels have invaded what was once anthracite's exclusive field, that of domestic space heating for the cities in the northeastern section of our country. In the anthracite counties, particularly Lackawanna, Luzerne, Carbon and Schuylkill, this competition has often led to serious unemployment in periods when the rest of the country was enjoying relatively full employment and a growing prosperity.

Despite the decline in production, and the consequent declining employment in the mines after 1920, the population of the area continued to increase. This, as shown by Figure I was due to a considerable excess of births over deaths within the hard coal counties.

Since the majority of the employed persons in the counties were miners, the decrease in production coupled with the increase in population resulted in a depression during the 1930's which was much more severe than in sections of the State with more diversified industry. The depth of the depression was reached when production fell to 46 million tons and total employment to less than 10% of the four county population. The unemployment problem was further aggravated by the increase in anthracite production per man day over previous years, due to increased mechanization, particularly in the strip pits.

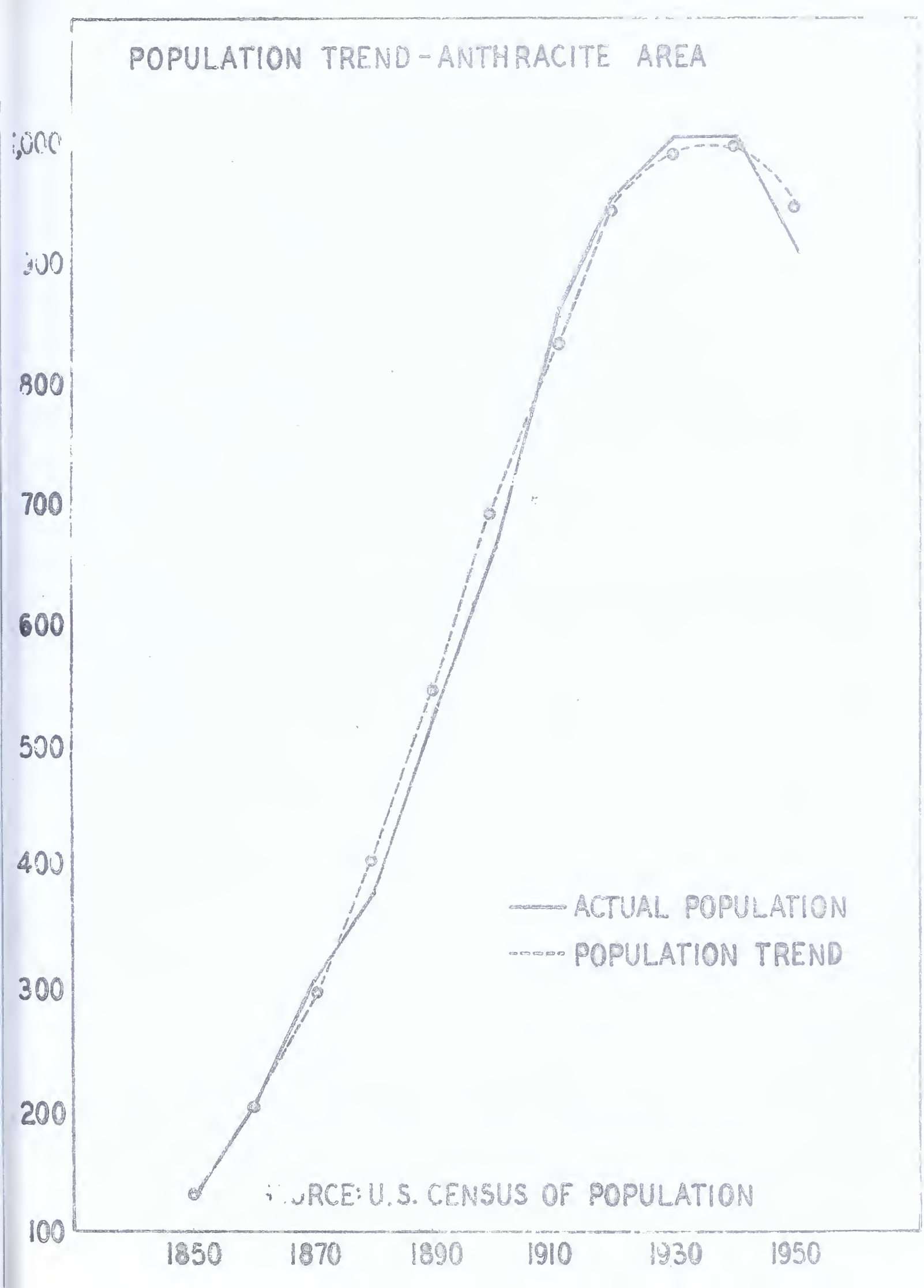
After 1930 the unemployment became so severe that the number of persons leaving the area in search of jobs eventually offset the population gains made by the high birth rate.

The seriousness of this migration may be better illustrated by comparison of population figures for the four county area in 1940 and 1950. The 1950 Census showed 907,772 persons living in the four counties as compared with 1,032,827 in 1940. This represents a loss of 125,055 people, or 12% of the 1940 population.

The migration problem is further intensified by the fact that a majority of the people involved in the outward movement have been in the younger groups as shown by an increase from 27 to 32 years in the median age of the population in Lackawanna and Luzerne counties between 1940 and 1950 and by the 41% increase in persons over 65. The exodus has consisted largely of males. In 1940 there were approximately the same number of males and females in the area. The ratio of men to women has now decreased to 95 males for every 100 females. On the other hand, the number of 5 year old children in these two counties was essentially the same in 1950 as it had been in 1940. This would seem to indicate that the birth rate for those who have remained in the area has increased in the past ten years.

Comparison of school enrollment in Lackawanna and Luzerne counties may further be used to illustrate the effect of this migration. The average daily school attendance in these two counties, according to the report of the Department of Public Instruction, has fallen from a total of 143,097 in the 1939-40 school year to 91,605 in the 1950-51 school year, a loss of 51,492 children, or 35% of the 1940 attendance.

Further, the labor force in the two counties dropped to 251,000 persons from the 1940 figure of 293,709, according to the United States Census.


POPULATION TREND - ANTHRACITE AREA
1,000
900
800
700
600
500
400
300
200
100
1850
1870
1890
1910
1930
1950
ACTUAL POPULATION
POPULATION TREND
SOURCE: U.S. CENSUS OF POPULATION

THE RESOURCES OF THE AREA

The Agricultural and Forest Resources

Types and Locations of Agriculture

Of the 1,621,120 acres of land enclosed within the boundaries of the four counties, approximately two-thirds is occupied by forests and by cities and towns. The remaining one-third is divided into 5,798 farms of varying sizes with a total value in excess of $53,000,000. These farms have an output that varies from dairy products to garden truck.

LAND USE

TABLE II

	Carbon	Lackawanna	Luzerne	Schuylkill	Avg.
Agriculture	19%	27%	22%	24%	23%
Forest (Includes Farm Woods)	79%	66%	68%	70%	71%
Other	2%	7%	10%	6%	6%

The Wyoming Valley is the scene of a great deal of truck farming. This is due to the proximity of a large local market, as well as to the fertility of the soil.

Farther north, the rolling hills and wide valleys of Lackawanna and northern Luzerne counties, with their shallow soils, make it necessary for the farmer to produce a profitable yield from a more difficult area. Consequently, there is a heavy concentration of dairy farming there.

This concentration of dairy farming has led to the creation of a market for feed crops. As a result, the largest crop area is devoted, each year, to alfalfa, clover, timothy, sorghum hay, and corn.

These crops total more than 115,000 acres of planted ground, much of it in the dairy district itself.

TABLE III

Farm Products Sold in Four Anthracite Counties - 1949

	Carbon	Lackawanna	Luzerne	Schuylkill	Total
Value all Prod. Sold	$1,840,532	$ 4,679,386	$5,641,420	$6,885,384	$19,046,722
Avg. Value Per Farm	2,998	3,890	2,733	3,592	3,285
Total Crops Sold	655,678	887,054	2,160,153	2,190,193	5,893,087
Dairy Prod.	266,307	2,519,945	1,862,979	1,416,627	6,065,858
Poultry and Products	749,480	907,701	1,095,582	2,629,036	5,381,799
Livestock Products	159,543	348,997	487,712	626,364	1,658,616
Forest Prod.	9,524	17,689	34,994	23,164	85,371

To the south, in the Ridge and Valley province, the land is utilized for general farming. The major products are grain, vegetables, Irish potatoes and poultry. The latter leads in dollar value.

Due to the relatively small area available for farm land and the intensive manner in which it is now used, it is doubtful if agriculture could make a further significant contribution to the development and improvement of the rest of the area.

In 1950 the farms of the four counties sold a total of $19,046,722 worth of products. Of this, 31% represented crop sales; although in Lackawanna county crop sales were only 19%, with dairy products contributing 54% of the total county farm income.

The farm area is important chiefly as a source of food for persons living within the counties. In most cases, the products are those which are expensive to ship, namely, potatoes, fresh vegetables and milk.

Forest Resources

In those sections in which thin soils have made agriculture impracticable, forested areas ranging from one to hundreds of acres form a contrast to the surrounding farm land. These woodlands, which are mainly along ridges and slopes, constitute 23% of the total farm acreage in the four county area, and form an integral part of more than 75% of the farms.

In 1948, 7% of the trees on the farm woodlots were suitable for saw timbers, 20% for pole timbers, and the rest were unmerchantable.

According to a report of the Northeast Forest Experiment Station, the production of the major forest products such as fuel wood, fence posts, mine timbers, saw logs and maple syrup on farm forests could be greatly increased if the forests were under proper management. This would require their elimination as a grazing area, an abuse which, despite its destruction of the normal reproduction cycle is practiced on 20% of the farm woodland.

In addition to the small farm woodlots discussed above, there are large areas in the anthracite counties whose entire economy is based upon the production of trees. The possible importance of this resource to the economy of the four counties may be emphasized by the fact that over 70% of the total four county area is in woodland. The forests vary from sugar maple-beech-yellow birch to the white pine-

white oak-red oak type. The latter is found in northern and western Luzerne and through most of Schuylkill and Carbon. Generally, this type is found on the higher and cooler plateaus.

The red oak-black oak-white oak type is especially predominant on either side of the Lackawanna and Susquehanna rivers, and in the highlands of southern and eastern Luzerne.

The sugar maple-beech-yellow birch type of forest has in many cases been reduced by fire to the virtually worthless aspen-grey birch-pin cherry type. These forests are found in northern and southeastern Luzerne and Lackawanna counties as well as in northern Carbon county.

Ninety-five percent of these forests occur as tracts of 50 acres or larger. As shown by Table III, the majority of the forest lands is owned by private individuals, with the next largest group owned by the coal companies.

Forest Land Ownership (Acres)

	Carbon	Lackawanna	Luzerne	Schuylkill	Total
Public Ownership	35,300	14,900	44,000	52,500	146,700
Dept. Forests & Wat.	14,000	5,300	1,100	--	20,400
Game Commission	9,100	4,300	27,900	9,600	50,900
County	12,200	5,200	15,000	28,700	61,100
Community	--	100	--	14,200	14,300
Private Ownership	169,600	177,500	351,000	291,500	989,600
Coal Companies	5,600	41,100	76,300	101,100	224,100
Water Companies	4,800	30,800	23,400	16,900	75,900
Farmers	18,300	23,500	47,300	37,400	126,500
Others	140,900	82,100	204,000	136,100	563,100
Total	204,900	192,400	395,000	344,000	1,136,300

In the latter part of the 18th Century, large areas of the forests which covered the slopes and valleys of the four counties were cut down to clear the land for farming. In the 19th Century commercial lumbering began. The white pine and hemlocks were removed for use as construction timbers and to provide tannin for the leather industry. This depletion has been further aggravated by the fact that the mines use timber in all sizes and shapes. Consequently, many forests have been clear cut, that is, every tree in a given area has been cut down regardless of its size. Therefore, many immature and fast growing trees were destroyed before their time.

Clear cutting is usually followed by fire due to the large amount of dry debris which is left lying about the ground. These fires are often so intense that they destroy the humus of the soil and thus prevent reproduction for a period of many years and often lead to the permanent destruction of the soil cover.

TABLE IV

FOREST AREA BY FOREST CONDITIONS
(Acres)

	Carbon	Lackawanna	Luzerne	Schuylkill	Total	%
Saw Timber	9,600	10,100	17,100	3,800	40,600	3.6
Pole Timber	32,300	38,000	59,100	14,000	143,400	12.6
Total Merchantable	41,900	48,100	76,200	17,800	184,000	16.2
Unmerchantable	163,000	144,300	318,800	326,200	952,300	83.8
Total Forest Land	204,900	192,400	395,000	344,000	1,136,300	--

In recent years the value of the woods is being realized and intensive fire preventive and control measures are being practiced. In addition, a large number of seedlings have been planted in some of the depleted areas. So heedless of the future were the early foresters that today 84% of the forest land is overgrown with unmerchantable scrub oak or with trees too young to be cut.

With improvement in management methods, the prevention and control of forest fires, protection from insects and the planting of more trees, it is believed by the technicians of the Allegheny Forest Experiment Station that the future forests of these counties can quadruple their present timber production. This would open the way for the location of pulp mills, hardwood distillation plants, furniture factories, spool-bobbin manufacturers, and other derivative industries in the area.

Through intelligent usage of the forests today, many future jobs could be created, but these are possibilities which can be realized only over a fairly long term of years.

Mineral Resources

Anthracite is, of course, the major industrial material available in quantity within the area. A recent report of the State Planning Board of the Pennsylvania Department of Commerce, "Pennsylvania Anthracite," has dealt in some detail with the problems of that important industry which has contributed so much to the comfort and prosperity of the northeastern section of the United States. It is not intended in this brief survey to consider the problems and possibilities of Pennsylvania anthracite beyond the very brief statement that

hard coal is undoubtedly one of our nation's more valuable fuel resources and one which has fallen into a place of minor importance only because of the rapid development of the natural gas and petroleum industries whose future is by no means so assured as that of coal. The Planning Board believes that much can be done to hold and extend the market for anthracite in the domestic heating field and that the development of its use in industry may provide a very important background for future industrial growth in this area.

It is doubtful, however, that increased production by the anthracite industry could, of itself, solve the unemployment problems of the four principal hard coal counties because of the increase in mine mechanization and of the high percentage of anthracite now being produced by stripping operations which have a high output per man-day. However, if anthracite could be used as a raw material, employment could be created in industries growing out of the various secondary products.

Other Mineral Resources

Opportunities in mineral industries other than anthracite appear to be limited in the four county area. The other major known resources are clays and shales. Many of these are suitable for use in the production of ordinary brick, and in some cases may even be suitable for use as face brick. There are also scattered deposits of limestone which might be satisfactory for use as agricultural lime. In addition to the above, there are many spots which contain sandstone suitable for building stone, curb-stone, and crushed stone.

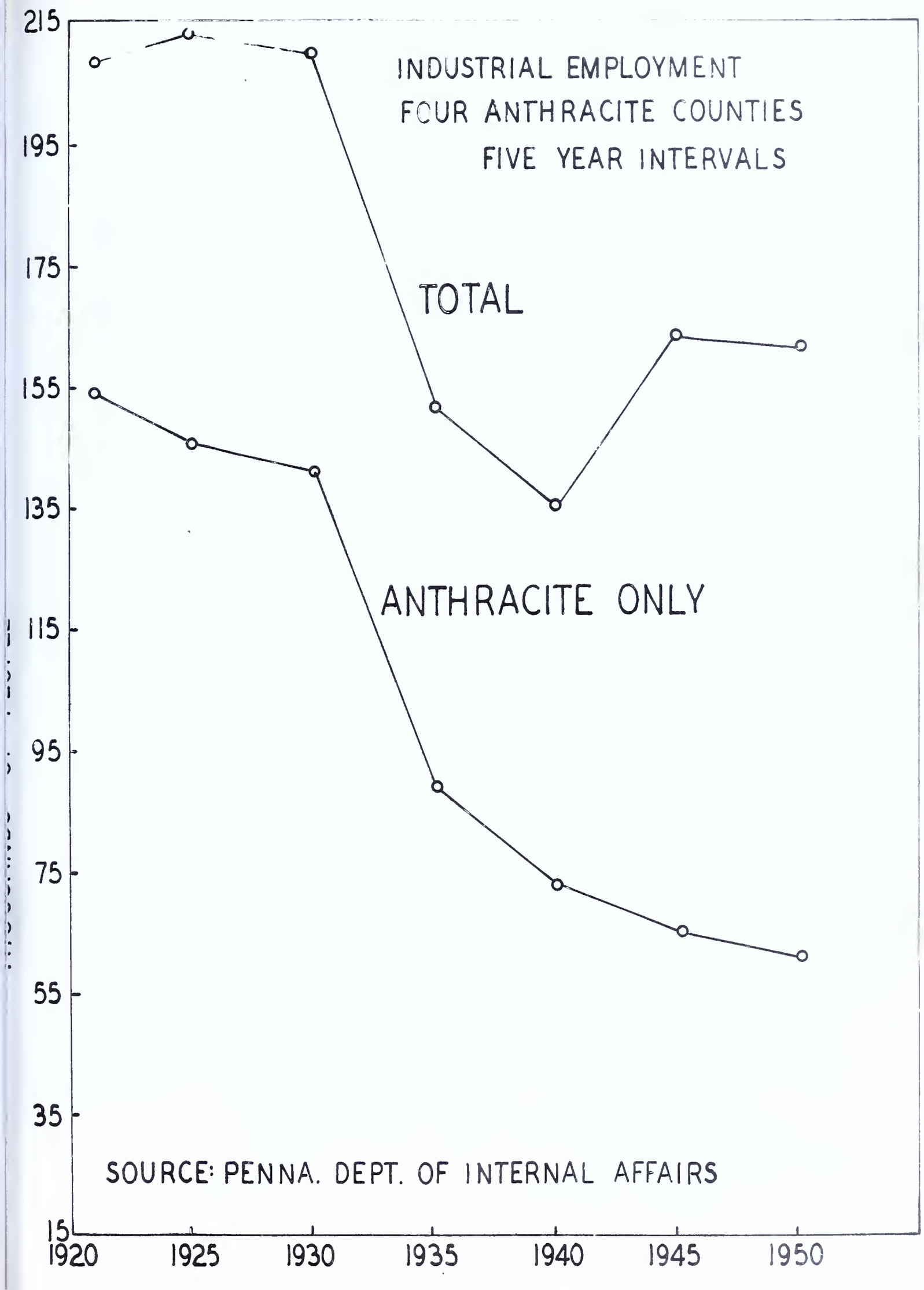

INDUSTRIAL EMPLOYMENT
FOUR ANTHRACITE COUNTIES
FIVE YEAR INTERVALS
TOTAL
ANTHRACITE ONLY
SOURCE: PENNA. DEPT. OF INTERNAL AFFAIRS
215
195
175
155
135
115
95
75
55
35
15
1920
1925
1930
1935
1940
1945
1950

TABLE V

INDUSTRIAL GROWTH

		Carbon	Lackawanna	Luzerne	Schuylkill	Total
Tot. No. Estab.	1940	91	408	461	326	1,286
	1950	100	552	626	373	1,651
Mining Estab.	1940	14	35	63	52	164
	1950	10	88	74	88	260
Non-Min. Estab.	1940	77	373	398	274	1,122
	1950	90	464	552	285	1,391
Textile Estab.	1940	20	70	73	64	227
	1950	37	134	174	93	438
Total Non-Mining Non-Textile Estab.	1940	57	303	325	210	895
	1950	53	330	378	192	958
Value Added by Non-Mining Estab.	1940	11,133,600	24,476,900	41,918,800	16,128,900	93,658,200
	1950	27,622,300	105,499,200	127,840,800	61,643,500	322,605,800

DEPARTMENT OF INTERNAL AFFAIRS

Second only to coal mining, the various branches of the textile industry provide the principal employment throughout most of the area. One-third of the total working population is engaged in this industry which pays approximately one-fourth of all the compensation earned in industry within the four-county area. The number of textile establishments has increased by 93% during the past decade, but several branches of the textile industry are at the present time exhibiting the consequences of over-production and are in competition with low labor cost areas in the Southern states. This fact has exaggerated the economic effect of declining demand for anthracite.

FOUR ANTHRACITE COUNTIES
VALUE OF PRODUCT - 1950
COMPENSATION PAID - 1950

360
270
240
210
180
150
120
90
60
30
0

VALUE OF PRODUCT
COMPENSATION

MINES & QUARRIES
TEXTILES
METAL INDUSTRIES
FOOD
PAPER & PRINTING
TOBACCO PRODUCTS
CHEMICALS
R.R. REPAIRS
MISCELLANEOUS
LEATHER & RUBBER
LUMBER & REMANUFACTURE
CLAY, GLASS & STONE PRODUCTS

URCE: PENNA. DEPT. OF INTERNAL AFFAIRS

The textile and apparel industries employ a high percentage of women workers. As a consequence, employment in the anthracite counties departs condiserably in type from the general pattern of the State as a whole. In Pennsylvania, approximately 75% of all workers are male. In Lackawanna county, the percentage is 60; in Luzerne, 67; in Schuylkill, 64, and in Carbon, despite a large primary metal industry, 68%. More significant than the fact that the percentage of male employment is 10% lower in the anthracite area than in the State as a whole, is the fact that the percentage of male employment in the counties declined between 1940 and 1950. In Lackawanna it was 15% lower; in Luzerne, 16% lower; in Schuylkill, 11.6% lower, and even in Carbon, 16% lower than in 1940, This means, obviously, that in 1950, fewer men and fewer heads of families were finding employment in the area than was true ten years ago, since the general level of employment also declined in that ten-year period.

The non-mining, non-textile establishments have shown only a 7% increase in the past decade. The major industry in this group is the manufacture of metal products. This employs only 9% of the employable population and provides only 10% of the total compensation paid. More new development in this type of industry appears to be necessaty if the area is to replace its past losses in employment opportunities.

The five-year average employment curve for employment in all industries and in the anthracite industry within the four counties had the same general trend until 1940. In that year total employment began to increase. This is testimony to the success of the efforts exerted by the local Chambers of Commerce, the Pennsylvania Power and Light Company and other local and regional organizations,

These agencies have waged promotional campaigns; have helped prospective manufacturers to build plants, and have provided countless other services which have attracted many new industries to the area.

There are in the anthracite counties today, manufacturers of such widely diversified products as primary zinc, aluminum products, drugs and medicines, beverages, food products, hand bags, furniture, paints and varnishes, machinery, pumps, radio parts, paper, cigars, men and women's outerwear, caskets, phonograph records and lace goods, - to name only a few. Some of these are small concerns, but some are large and of national importance. They are doing well in the area and there is no reason why others suited to its resources and labor supply should not be able to do quite as well.

Locational Advantages

The four anthracite counties are located in the heart of the richest and most densely populated area in the United States. More than 56,000,000 people can be reached over night by train. Every important industry on the north Atlantic coast is within 48 hour freight service of this area. In addition, within a 200-mile radius are located such large metropolitan centers as New York City, Philadelphia, Wilmington, Baltimore, Washington, Lancaster, Harrisburg, Altoona, Johnstown, Pittsburgh, Erie, Syracuse, Binghamton, Utica and Elmira.

Within a radius of 500 miles dwell 70 million people, and 130 thousand manufacturing plants employ 8 million factory workers, who receive 61% of the industrial payroll of America. These large markets may be reached with ease over the area's nine railroads and

by United States Routes 6, 122, 209, as well as by the more than 2,000 miles of improved State roads which cross the four counties. In addition to these land facilities there are approximately ten airports located in different parts of the four counties which service the five routes which cross the area.

The four counties are also in a strategic position in regard to water transportation. The city of Wilkes-Barre, which is in the approximate center of the area, is only 85 miles from the Port of Philadelphia, the second largest in the United States, its more than 200 piers handling in excess of 60 million tons of freight annually. In addition, the Philadelphia area is involved in one of the greatest industrial expansions in its history.

It should also be noted that even within the four county area there is today an effective buying income that exceeds one billion dollars a year. If employment increases, buying power in the area and its surrounding counties will naturally rise.

The excellent locational advantages of the anthracite region are complemented by the presence of an ample water supply which is provided by various private companies. These have established reservoirs between the coal valleys and at the edge of the mining region.

Within the four counties there are four major rivers, and in addition many other streams and creeks which are not utilized by these companies due to mine contamination.

However, the State of Pennsylvania is engaged in an extensive stream purification program. Since 1945 much has been done to clean up the rivers and make them suitable for industrial and domestic use.

Consequently, if data were available for the year 1950-51 it would most certainly show a marked improvement in the quality of the surface water over previous years. In the latter part of 1951, for the first time in many years, fish were thrown into the Schuylkill river by the Pennsylvania Fish Commission with the expectation that they would live, and shad are currently being introduced again into the waters of the Susquehanna.

Labor Supply

Lackawanna, Luzerne and Schuylkill counties have today a surplus labor supply. The Pennsylvania State Employment Service has estimated that in March of 1952 there were approximately 34,650 persons unemployed in the three counties due to no fault of their own. This is approximately 15% of the working population. Of the unemployment reported in Lackawanna and Luzerne counties in March of this year, more than 70% is of male workers and this fact underlines the nature of the problem now facing the area.

These persons are of Welsh, English and Eastern European extraction. In the main, they are a hard-working, conscientious people used to operating machinery. They ask only for a steady job at a fair wage, as shown by the fact that there have been no major strikes in the area since 1921.

THE NECESSITY FOR REGIONAL PLANNING IN THE ANTHRACITE AREA

On the basis of this brief survey of the conditions facing the people of the anthracite counties, it is clear that there is no quick and easy answer to the problem of replacing the lost employment opportunities of the area. It is obvious, however, that the only

solution lies through a more intensive industrial development. The existing population in the four counties demands for its support a more concentrated source of employment than would be possible through either agriculture or forestry. If such an increase in industrial production is to be attained, it also seems clear that the efforts of the many private agencies in the area devoted to industrial development must be supplemented by a program of over-all regional planning which will provide a satisfactory and attractive environment for new industries, and will overcome any prejudices which may presently exist against the anthracite area as a result of its concentration on coal mining during the past 100 years. The need for such a regional planning effort dealing with problems beyond the ability of a single county to handle alone, seems obvious from the facts already presented in this summary. Confidence must be established, not only on the part of outside industrial interests, but also in the hearts of the younger men and women of this area on whom its development chiefly depends.

These young people whom the community has educated at considerable cost, and in whom it has also a large emotional investment, are the most valuable potential resources of the entire area. No material advantage which the region possesses will be of the slightest avail if its young men and women, who understand conditions in the hard coal region and have grown up there, do not stay there to develop their own personal opportunities on the basis of those resources.

Every industry, however small or humble its beginning, which grows from the faith of a young man or woman in his own home neighbor-

hood, is an important community asset. During the past generation while the demand for anthracite was declining due to competitive forces, the hard coal region became the incubator for some of the greatest instances of personal success in recent American history. In manufacturing, in merchandising, in construction and in the service industries, the enterprise of young men in this area has led to the creation of important and dynamic developments. However much economists may study the prevailing conditions in these four counties, or in the larger enclave of which they are a part, the fact remains that future progress depends not so much on these economic factors, as on the confidence which may be engendered in the young citizens of today who can become the leaders of tomorrow.

The future of the anthracite region will be determined as much in its public schools as by any action which may be taken by its Chambers of Commerce, its local government or that of the State and Nation. Yet the local government bodies and business organizations can do much to make possible, in the difficult conditions of today, the success of those young men and women who have come to believe in the opportunities of their own home towns.

No community today can hope to grow and prosper if it does not provide the services and facilities which are an accepted part of the American standard of life. A community survey which will reveal deficiencies in those facilities, professional services, or types of business which a progressive American town or city of a given size should have, is a vital first step in any program of public improvement and it is one which is obviously a local as well as a regional responsibility. It is equally important to discover

types of business and services of which the area has an oversupply. A survey showing such facts as these could guide young men and women toward present opportunities in these counties and also prevent waste of time in attempting to compete in any overcrowded field.

Financial assistance through the establishment of a revolving fund is only one of the several forms which local aid to industrial development can take. One very effective help to small industry, and one which has proved its worth, is the establishment of a voluntary committee or the employment of trained men to advise the owners of small business enterprises in regard to production problems, shipping problems, sales problems, or financial problems. To have available such help may often mean the difference between success or failure in the early stages of a business venture whose growth might eventually provide an important source of local prosperity.

For all these reasons, it is believed and recommended that an official regional planning commission should be formed here under powers granted by the Planning Enabling Laws of the Commonwealth, and that it should include at least the area of Lackawanna and Luzerne counties, with the possibility of extending its field of operations to the other counties where anthracite has been an important factor in employment and income. Such a planning commission, if provided with an adequate staff, could and should undertake the studies and investigations necessary for the full employment and efficient utilization of the resources of this region and should be empowered to coordinate its studies with the activities and programs of each county, so that community efforts may produce the maximum benefit in stimulating the growth of industry and in improving the facilities for contented community life.

In an area like that of the anthracite counties where locational advantages are many, and where one great and dominant industry is suffering a possibly temporary decline in its production and employment, public action to meet the area's present and prospective problems seems vitally important.

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CHEMICAL CHARACTER OF SURFACE WATER IN PENNSYLVANIA 1949 TO 1951

PREPARED IN COOPERATION WITH
UNITED STATES GEOLOGICAL SURVEY
AND
PENNSYLVANIA DEPARTMENT OF
FORESTS & WATERS

PY P 712.17/9
no. 26

PUBLICATION 26

NOVEMBER 1953

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Chemical Character of Surface Water in Pennsylvania 1949-1951

BY
NORMAN H. BEAMER
DISTRICT CHEMIST
U. S. GEOLOGICAL SURVEY

Prepared in cooperation with the
Pennsylvania Department of Forests and Waters
and
The United States Geological Survey

1953

INTRODUCTION AND ACKNOWLEDGMENTS

This is a report of the chemical quality data for selected rivers and streams of the Commonwealth of Pennsylvania, covering the period from October 1949 to September 1951. As in the case of previous reports of chemical quality data presented in Publications 17 and 23, this compilation is the result of the cooperative efforts of the Pennsylvania State Planning Board, the Pennsylvania Department of Forests and Waters, and the U. S. Geological Survey.

Recognizing the need of industry for adequate and reliable data on the chemical quality of the water in Pennsylvania's rivers and streams, the Pennsylvania Department of Commerce through its State Planning Board entered into a cooperative agreement in 1944 with the U. S. Geological Survey for the purpose of obtaining systematic records of the chemical characteristics of the surface waters throughout the Commonwealth. The results of these studies covering the period from July 1944 through September 1946 were reported in State Planning Board Publication 17, "Industrial Utility of Water in Pennsylvania—Chemical Character of Surface Water 1944-46." The results of the investigation for the period 1946-49 were reported in Publication 23.

One of the first considerations in the selection of an industrial site is the amount and quality of water available. For many years the Pennsylvania Department of Forests and Waters in cooperation with the U. S. Geological Survey has maintained a program for obtaining stream flow records. From these day by day records of a relatively small number of gaging stations it is possible to estimate the amount of water which is available at most points of any major stream in the State.

Data concerning the quality of water can be determined only from chemical analysis. A number of key sampling stations provide a running ten-day composite record of the chemical analyses, and an index of the day by day fluctuations at those key points. Intensive investigations covering small drainage areas and spot sampling at periods of high flow and low flow provide additional data for determining the amount of the various chemical constituents which

may be expected, at various points in the streams of the State at various water stages.

Due to the relatively short period covered by this program for determining the chemical character of surface waters in Pennsylvania, the data are still inadequate for many places, especially in the smaller drainage areas. The dispersal of industrial plants which has accelerated during the past decade makes information covering these smaller drainage areas of constantly increasing importance.

The water analyses were made in Geological Survey laboratories in Washington, D. C., and in Philadelphia and Schuylkill Haven, Pennsylvania, under the general direction of S. K. Love, Chief, Quality of Water Branch and W. F. White, District Chemist for Pennsylvania in the period covered by this report.

Much assistance has been received in connection with planning programs, coordinating State and Federal activities, and providing records of water discharge from J. W. Mangan, Chief of the Division of Hydrology of the Department of Forests and Waters and District Engineer of the U. S. Geological Survey.

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4. Ammonia nitrogen				
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6. Taste and odor				
7. B. O. D.				
8. Dissolved oxygen				
9. Oxygen consumed				
10. Turbidity				
11. Manganese				
12. Iron				
13. Fluoride				
14. Color				
15. pH				
16. Nitrate				
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19. Dissolved solids				
20. Hardness				
21. Sulfate				
22. Magnesium				
23. Calcium				
24. Specific conductance				
25. Sodium				
26. Potassium				
27. Silica				
28. Boron				

A. Tests for determining sanitary quality for public or domestic supplies.

B. Tests for determining suitability for industrial uses.

C. Tests for determining suitability for agricultural uses.

D. Tests for determining geological relations of natural surface and ground waters.

QUALITY OF WATER IN INDUSTRY

Most manufacturing industries that require process water have individual water quality requirements for their varied products. For example, the paper and pulp industry cannot be indifferent to the chemical composition of its water supply without risking inferior or unsalable products; the beverage industry must also select a suitable source of water for quality control of its products. Some aspects of water quality studies in which industries have an essential interest are (1) variations in the kind and amount of chemical substances dissolved in natural waters, (2) the effect of man-made diversions on both quality and quantity, (3) the effect of waste discharges to streams, (4) the reuse of water by industry and (5) environmental factors which affect water temperatures.

A high percentage of surface water is used by industry for cooling purposes, thus the water temperature becomes an important factor in plant location, economic operation, and material processing. Extensive recording of river and stream temperatures show that wide seasonal variations occur, that shore line temperatures are slightly higher than temperatures at the middle of the stream, and that temperatures vary with water depth. Generally, the lower its temperature in summer the more desirable the surface water will be as a cooling agent. Some industries use surface water in the winter and ground water in the summer, taking advantage of the fact that the temperature of ground water shows less seasonal variations than that of surface water. However, the increased demands upon ground water in some areas have seriously lowered the water table locally which suggests that there will be increasing demands made in the future on surface water as a coolant.

Many industries have utilized certain water quality criteria in selecting or treating water for their use. These criteria vary within industries because of difference in processes and are merely used as guides in determining what water sources could be used most economically to give the quality of product desired. Some of those characteristics of water that have been found important in evaluating water for industrial use are given in the following tables, and are discussed in the next section of this report.

SOURCE AND SIGNIFICANCE OF CHEMICAL AND PHYSICAL CHARACTERISTICS OF NATURAL WATERS

Water has many uses and in order to determine its value for each purpose certain chemical, physical, and bacteriological tests are made. Although the data in this publication may serve many purposes, they are primarily intended to furnish industry and Public Water Supply management with information relevant to water quality.

Nearly all public water supply sources in the Commonwealth of Pennsylvania receive some degree of chemical treatment to make them safe for human consumption. While it is true that most public water supplies can be economically adapted to industrial use, it is not necessarily true that pathologically safe water will meet the required standards of all manufacturing industries. The quality of water surveys of the rivers and streams in Pennsylvania include chemical determinations for water constituents whose excessive concentration might prove disadvantageous to processes of manufacturing.

In this section are discussed the source and significance of the constituents of most concern to industry.

COLOR.—Color in water is due to suspended material and dissolved organic substances of either vegetable or mineral origin. The degree to which water is colored is expressed by comparing the color of the water with that of colored glass discs, calibrated to a standard platinum-cobalt scale.

Humus, peat, and vegetation, particularly the algae group of plants that are commonly distributed in swamp water, will often give such water a color value as great as 300. Municipal wastes and many industrial wastes, such as those discharged from chemical plants, or pulp and paper mills, contribute to the colors. Color in water is disadvantageous in many enterprises such as the ice making, beverage, photographic, laundry, and textile industries.

HYDROGEN-ION CONCENTRATION (pH).—The intensity of acidity or alkalinity of a water, as indicated by the hydrogen-ion concentration (pH), is of importance in the determination of the corrosive properties of water and the proper treatment for coagulation at water treatment plants. It is expressed as the negative logarithm of the number of moles of ionized hydrogen per liter of water. A neutral water has a pH of 7.0. The pH of most natural waters normally varies between 6.0 and 8.0. Some alkaline waters

have pH values greater than 8.0 and waters containing free mineral acid may have values less than 4.5. The discharges of strong acid or alkaline wastes will influence the pH value of the river or stream into which they are released. A recently-prepared summary of pH values for various industrial process waters is as follows:

pH FOR VARIOUS INDUSTRIAL PROCESS WATERS*

Industrial Process	Minimum	Range
Boiler Feed Water:		
0 to 150 gage pressure	8.0	
150 to 250 gage pressure	8.4	
250 to 400 gage pressure	9.0	
400 and over	9.6	
Brewing		6.5 to 7.0
Confectionary	7.0	
Food Canning and Freezing	7.5	
Laundering		6.0 to 6.8
Oil-Well Flooding	7.0	
Rayon Manufacturing		7.8 to 8.3
Steel Making		6.8 to 7.0
Tannery Operations		6.0 to 8.0

* California Water Pollution Control Board, 1952, Water Quality Criteria: SWPCB Pub. 3, p. 317.

SPECIFIC CONDUCTANCE (micromhos at 25°C.).—The specific conductance of a water is a measure of its ability to conduct a current of electricity. It varies with the concentration, and degree of ionization of the different minerals in solution. Changes in the Specific Conductance of a water reveal changes in the concentration or relative proportions of the minerals dissolved in it. Specific conductance may be used as an indicating factor for general classification of waters and has been widely used as one criteria in rating the quality of irrigation waters.

SILICA (SiO_2).—Silica is found in both surface and ground water but is more prevalent in ground water. The usual range of its concentration is from 1 to 60 ppm, however, it sometimes does exceed 60 ppm, but very rarely. The silica in water is dissolved from sand, quartz, feldspar, kaolinite, and other minerals. Silica in water may contribute to boiler scale, to "embrittlement" resulting in boiler failure, and to deposits on steam-turbine blades.[1] Limiting values of SiO_2 that have been mentioned in the literature as being significant for various industrial processes are summarized as follows:

[1] Straub, F. G., Embrittlement in Boilers: Illinois University Eng. Exper. Sta., Bull. 216, 1930.

SILICA IN WATER FOR VARIOUS INDUSTRIAL PROCESSES*

Industrial Use	Limit in parts per million
Brewing	50
Boiler Feed Water, Gage pressure	
0-150 psi	40
150-250 psi	20
250-400 psi	5
400 and over	1
Ice Making	10
Pulp and Paper Mills	
Ground wood pulp	50
Soda and Sulfate pulp	20
Kraft-Bleached	50
Kraft-Unbleached	100
Fine Paper	20
Rayon Pulp Production	25

* California Water Pollution Control Board, 1952, Water Quality Criteria: SWPCB Pub. 3, p. 353.

ALUMINUM (Al).—Aluminum is not regularly determined in the analysis of water. In most natural water the aluminum concentration is so small that it has little significance in evaluating water for industrial use. However, significant quantities of aluminum are sometimes found in acid waters and in wash water from water treatment plants. Aluminum in water has been reported to be objectionable to certain industries, such as the manufacture of rayon, paper, and textiles.

MANGANESE (Mn).—Manganese in water often accompanies iron and like iron is an undesirable constituent because it may cause discoloration and stains. Manganese deposited from solution can clog pipes and valves. Ordinarily the concentration of manganese in natural surface waters will not be in excess of a few tenths part per million, but the concentration in ground water may be several times greater. Acid water from mine drainage may show high manganese concentration. Industries such as textile manufacturing, dyeing, food processing, distilling and brewing have found manganese in water objectionable. The U. S. Public Health Service recommends limits of 0.3 ppm for iron and manganese together in public water supplies.

IRON (Fe).—Iron is dissolved from the soil and rocks and is usually found in greater concentrations in ground water than in surface water. It can be dissolved from pipes of a water supply

system. Natural waters may be polluted by iron-bearing wastes from industrial effluents. Ordinarily the concentration of iron in natural surface waters are less than 0.1 ppm. The exceptions to these limits occur mostly in ground waters. Where this occurs the industrial utility of water is greatly impaired. Large amounts of iron, greater than 0.3 ppm for household and 0.1 ppm for industrial use, are considered undesirable because of a condition resulting in what is commonly referred to as "red water." This is caused by precipitation of iron when exposed to air and is prominently identified as stains in sinks, washbasins, and bathtubs. Delicate fabrics are damaged with stains when washed with water of high iron concentration. The dyeing, tanning, and textile industries, bottling companies, paper manufacturers, and others require water that is virtually free of iron. The following table summarizes iron threshold values in water for certain industrial processes.

THRESHOLD VALUES FOR IRON IN PROCESS AND COOLING WATERS*

Industrial Use	Parts per million
Baking	0.2
Brewing	0.1 to 1.0
Carbonated Beverages	0.1 to 0.2
Cooling Water	0.5
Confectionary	0.2
Electroplating	Traces
Food Canning and Freezing	0.2
Food Equipment Washing	0.2
Food Processing, general	0.2 to 0.3
Ice Manufacturing	0.3 to 0.2
Laundering	0.2
Oil-Well Flooding	0.1
Plastics Manufacturing	0.02
Pulp and Paper Making	
Groundwood Pulp	0.3
Soda Pulp	0.1
Kraft Pulp, Bleached	0.2
Kraft Pulp, Unbleached	1.0
Fine Paper Pulp	0.1
Rayon Manufacturing	0.0 to 0.05
Sugar Making	0.1
Tanning Processes	0.1 to 2.0
Textile Manufacturing	0.1 to 1.0

* California Water Pollution Control Board, 1952, Water Quality Criteria: SWPCB Pub. 3, p. 277.

CALCIUM (Ca).—Calcium salts are among the most abundant constituents of water. In these chemical analyses calcium and magnesium are generally considered together because of their similar effects upon the use of water. Hardness in water is caused primarily by the presence of calcium and magnesium which, among other disadvantages, causes boiler scale.[2] Hardness limits the value of water for such household chores as washing, bathing and laundering because of the large amounts of soap required to lather.

Calcium may be discharged into rivers and streams from sewage and different types of industrial wastes. Calcium is dissolved from practically all rocks, particularly limestone, dolomite, and gypsum. Most waters from granite contain less than 10 parts per million of calcium; many waters from limestone contain from 30 to 70 parts; and waters that leach deposits of gypsum may contain more than 100 ppm.

MAGNESIUM (Mg).—Like calcium, magnesium is an abundant element of the earth's crust where it is widely distributed. Generally, the salts of magnesium are readily soluble. Water that contains much magnesium chloride is likely to be corrosive and particularly damaging to steam boilers.[3] The magnesium in soft waters may amount to only 1 or 2 parts per million, but waters in areas that contain large quantities of dolomite may exceed 20 to 50 parts per million. The U. S. Public Health Service recommends that a limit of 125 ppm of magnesium be established for drinking water.

SODIUM and POTASSIUM (Na and K).—Sodium and potassium are dissolved from practically all rocks, but except in tidal streams and arid regions they usually make up only a small part of the dissolved mineral matter. Potassium resembles sodium in many of its properties, and potassium salts can be substituted for sodium salts in many industrial applications. Moderate quantities of these constituents have little effect, but waters that carry more than 50 ppm of sodium plus potassium may cause foaming in boilers. The amount of sodium in water is a factor for determining its suitability for irrigation .Excessive concentrations of sodium cause soil colloids to swell and close the pores of the soil, thereby reducing the soils permeability to water and air. Some waters contain so much sodium that they are unfit for nearly all uses.

CARBONATE (CO_3).—Generally, carbonate is not present in large amounts in natural waters. The concentration of carbonate is a function of temperature and pH. The carbonate of calcium and magnesium are not readily soluble in water and can be removed by precipitation. Excessive carbonate in water has been considered

[2] Partridge, E. P., Formation and Properties of Boiler Scale: Michigan University, Eng. Research, Bull. 15, 1930.

[3] Rudolf, Z., Principles of the Determination of the Physical and Chemical Standards of Water for Drinking, Industrial and Domestic Purposes, Water Pollution Abs. 19, March 1931.

particularly objectionable by the carbonated beverage industry, brewers, and ice manufacturers. The U. S. Public Health Service standards (1946) set no limits of carbonate concentrations on untreated water, but in chemically treated waters the standard carbonate alkalinity is limited to 120 ppm.

BICARBONATE (HCO_3).—The presence of bicarbonate in natural waters is due largely to the action of carbon dioxide which enables the water to dissolve carbonates of calcium and magnesium. Bicarbonate can be added to water by decomposed organic material and by washes from industrial processes. The concentration of bicarbonate is related to pH, temperature and the concentration of carbonates. Excessive amounts of bicarbonates tend to form carbonates and form scale at high temperatures. Hibbard says that bicarbonate in excess of 100 ppm are objectionable for steam boilers and if in excess of 200 ppm, objectionable to the textile industry.[4]

SULFATE (SO_4).—Sulfate is found in natural waters as a result of the solution of sodium sulfate and gypsum in rock and soil. It may also be formed from the oxidation of sulfide, sulfite and thiosulfate. Iron pyrite, FeS_2, through the action of water and air, is the source of sulfate found in acid mine waters. Sulfate may sometimes be traced to industrial wastes of tanneries, sulfate pulp mills and other manufacturers whose plant operations require the use of sulfates or sulphuric acid.

Sulfates increase the corrosiveness of water toward concrete. According to Kellam, "If the sulfate is less than 25 ppm, injury from this source will be mild. Where the SO_4 is in the hundreds of ppm, it is a possible source of great harm to concrete and protection must be provided."[5] Other suggested upper limits for sulfate are: for the textile industry, less than 100 ppm; for sugar making, less than 20 ppm; and carbonated beverages, less than 250 ppm.[6] In the presence of the hard-water constituents, calcium and magnesium, a hard boiler scale is formed and the added cost of treatment for softening becomes a factor for consideration.

CHLORIDE (Cl).—Chloride is present in most natural waters and uncontaminated surface water will usually contain a few parts per million. The exceptions are the tidal rivers and streams where encroachment of sea water will account for high concentrations. Chlorides find their way to streams from cultivated fields where salts have been spread for agricultural purposes. Chlorides are dissolved from rock materials and also may be discharged in industrial

[4] Hibbard, P. L., The Significance of Mineral Matter in Water, Journal A.W.W.A. 21, 884, 1934.

[5] Kellam, B., The Action of Water on Concrete, Proc. ASTM 38, Part I, 289, 1933.

[6] California Water Pollution Control Board, 1952, Water Quality Criteria: SWPCB Pub. 3

wastes. Chloride catalyzes corrosion of boilers, pipes and fittings.[7] Concentrations of chloride as low as 20 ppm have been reported to be corrosive.[8] The U. S. Public Health Service recommends that chloride should not exceed 250 ppm in drinking water used in Interstate carriers.

FLUORIDE (F).—Fluoride originates from sedimentary rock and rocks formed from the molten state and is most commonly found in surface waters in concentrations less than 0.5 ppm. Fluorides are often found in greater concentration in ground water than surface water. In abnormal concentrations, it is reported to cause the dental defect known as mottled enamel, if the water is used for drinking by young children during calcification of the teeth. This condition becomes more noticeable as the quantity of fluoride in water increases above 1 part per million. It is however, reported that the incidence of dental caries (decay of teeth) is decreased by quantities of fluoride that are not sufficient to cause mottled enamel. For drinking purposes, or food or beverage manufacture, water should contain no more than about 1.5 ppm of fluoride.[9]

NITRATE (NO_3).—Nitrate in water is considered a final oxidation product of nitrogenous substances from sewage or other organic material. However, industrial wastes from explosives and fertilizer plants may contain appreciable quantities of nitrate salts. Cox reported that a nitrate concentration in excess of 50 parts per million (as NO_3) in water consumed by infants has been directly associated with methemoglobinemia, a condition in which the surface of the body of an infant becomes blue.[10] Unpolluted surface waters seldom have more than a few parts per million of nitrate. Nitrate may reach abnormal concentration in percolating ground water in areas under cultivation where nitrate fertilizers have been added to the soil. Leachings of cesspools also can be a source of nitrate contamination. The presence of nitrate in water is objectionable in dyeing fine fabrics and also in the brewery industry.

DISSOLVED SOLIDS.—The reported dissolved solids (the residue on evaporation) consists mainly of the dissolved mineral constituents in the water. It may also contain some organic matter and water of crystallization. Waters with less than 500 ppm of dissolved solids are usually satisfactory for domestic and most industrial uses. Water with more than 1,000 ppm of dissolved solids are likely to be unsuitable for most uses. The concentration of mineral constituents in water can be lessened by dilution or increased by discharges of industry and by drainage from irrigated land. High concentration of dissolved solids are objectionable because

[7] Lichtenberg, H., The Effect of Water on Aluminum, Water Pollution Abs. 21, March 1948.
[8] Phelps, E. B., Public Health Engineering, Wiley and Sons, 1948.
[9] Faber, H. A., The Status of Fluoridation in 1949, Public Health Eng. Abs. 30, No. 4-5, 1950.
[10] Bosch, H. M., et al, Journal American Water Works, Volume 42, February 1950.

of their effect on turbidity, color or taste. The following table gives the limiting concentration of dissolved solids for industrial waters.

LIMITING CONCENTRATIONS OF DISSOLVED SOLIDS FOR INDUSTRIAL WATERS

Industrial Use	ppm
Paper Manufacturing	
Groundwood Papers	500
Fine Papers	200
Kraft Paper, Unbleached	500
Kraft Paper, Bleached	300
Soda and Sulfate Pulp	250
Pulp Paper and Paperboard	
High Grade Products	75-80
Lower Grade Products	150-200
Confectionary	100
Ice Raw Water	170-350*
Plastics, Clear, Uncolored	200
Food Products	850
Dairy	850
Brewing, Light	500
Brewing, Dark	1000
Brewing and Distilling	800
Carbonated Beverages	855
Washing of Utensils	850
Boiler Feed Water	50-3000 (according to pressure)

* However, 1300 ppm has been used successfully. Water Quality Criteria—California, Water Pollution Control Board, 1952, p. 246.

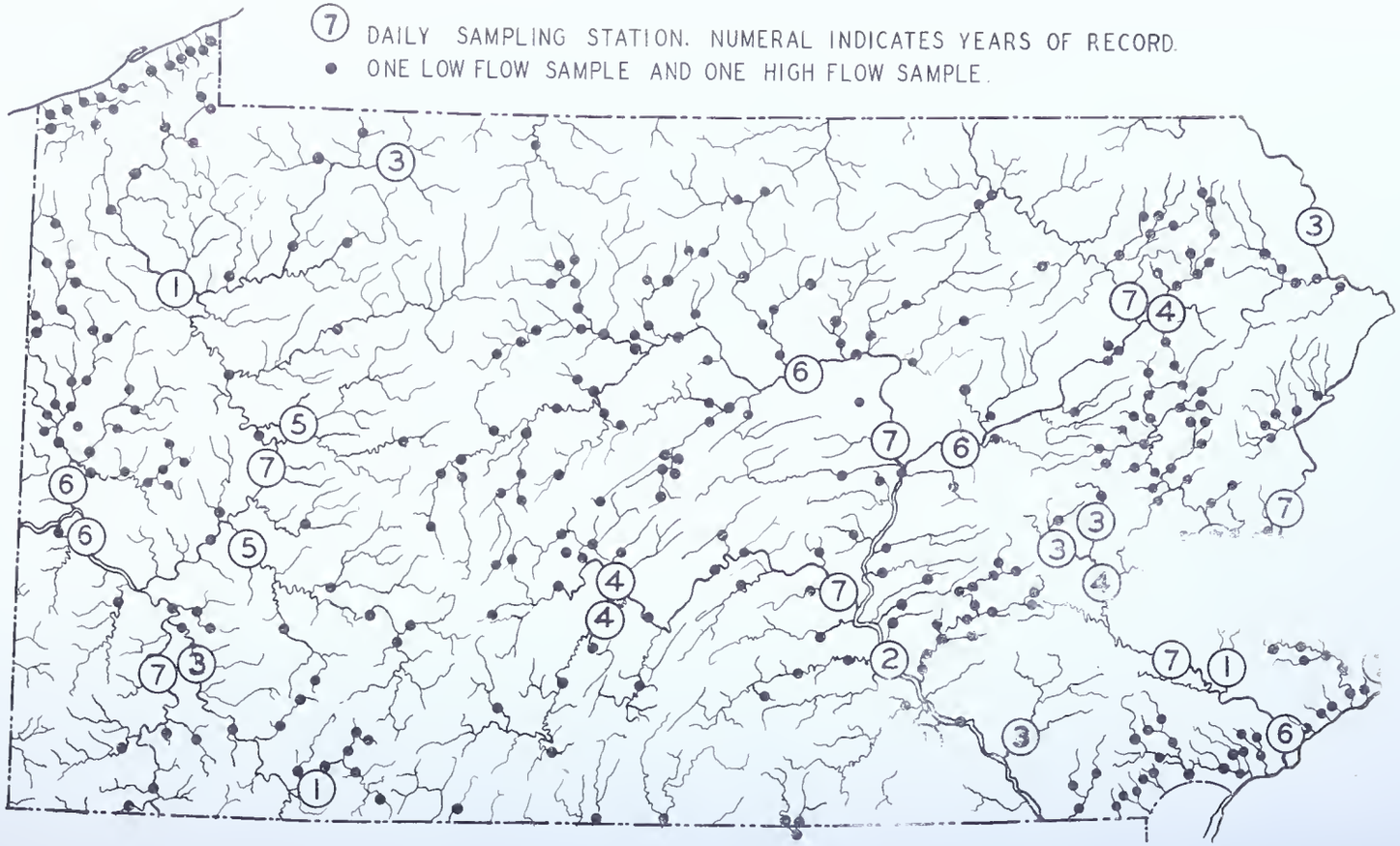
HARDNESS.—Perhaps there is no other characteristic of water that has received more consideration than water hardness. Hardness in water is caused almost entirely by compounds of calcium and magnesium resulting from contact with soil and rocks. Hard waters are most frequently associated with deposits of limestone, gypsum and dolomite. Hardness is sometimes reported as calcium hardness or magnesium hardness. The concentration of calcium and magnesium more than any other constituents affect the value of waters used for industrial purposes. Hard water deposits scale in boilers, piping systems, engine jackets and is particularly objectionable to such manufacturing industries as textile finishing, dyeing, canning, ice manufacture, rayon manufacture, laundries, photography, paper manufacturing and many others. The following table summarizes the available literature on tolerance of hardness in industrial waters.

MAXIMUM HARDNESS FOR* VARIOUS INDUSTRIAL PROCESS WATERS

Industrial Use	ppm
Boiler Feed Water	
at 0-150 psi	80
at 150-250 psi	40
at 250-400 psi	10
over 400 psi	2
Brewing	200-300
Carbonated Beverages	200-250
Cooling	50
Food Canning and Freezing	
General	50-85
Legumes	25-75
Fruits and Vegetables	100-200
Peas	200-400
Food Equipment Washing	10
Food Processing, General	10-250
Ice Manufacture	70-72
Laundering	0-50
Pulp and Paper Making	
Groundwood Pulp	200
Soda Pulp	100
Kraft Pulp, Bleached	100
Kraft Pulp, Unbleached	200
Fine Paper Pulp	100
Rayon	
Pulp Production	8
Cloth Manufacture	55
Steel Manufacturing	50
Synthetic Rubber	50
Tanning	
Beam House	513
Tan House	50-135
Textile Manufacture	0-50

* California Water Pollution Control Board, 1952, Water Quality Criteria: SWPCB Pub. 3, p. 267.

TOTAL ACIDITY.—The total acidity of a natural water represents the content of carbon dioxide, mineral acids and salts—especially sulfates of iron and aluminum—that hydrolyze to give hydrogen ions. Acid waters are very corrosive and generally contain excessive amounts of objectionable constituents, such as iron, aluminum and manganese. Acidity in surface or ground waters can be caused by carbon dioxide, humic acids extracted from swamps or peat beds, or to industrial wastes.



LOCATION OF WATER SAMPLING STATIONS
1944 - 1951

FIGURE 1

VARIATIONS IN WATER QUALITY OF SURFACE WATERS OF SECTIONS OF PENNSYLVANIA

The location of sampling stations and length of record of daily sampling stations are shown in Figure I. The records of water quality for the period covered in this report and previous reports show that, in general, waters having little dissolved material are found in northeastern and northcentral sections of Pennsylvania, but some waters in the northeastern section have noticeable color. Somewhat greater concentrations of calcium, magnesium, bicarbonate and nitrate are found in waters in southeastern and southcentral sections of Pennsylvania, with principal exceptions occurring in streams affected by acid mine drainage. Many of the waters in the northwestern section are similar to those in the central part of the state.

In southwestern Pennsylvania acid mine waters, heavy-industry wastes and lack of sufficient inflow of good quality ground water tend to result in the poor quality of water frequently found there. In this southwestern section can be found wide variations in quality in the streams and the highest concentrations of practically all the dissolved constituents tested for in Pennsylvania waters.

Figure II shows the range of specific conductance and hardness values for some of the rivers and streams of Pennsylvania and the averages for the period of available records.

RANGE OF HARDNESS AND CONDUCTANCE VALUES —— SEPTEMBER 1949 TO OCTOBER 1951

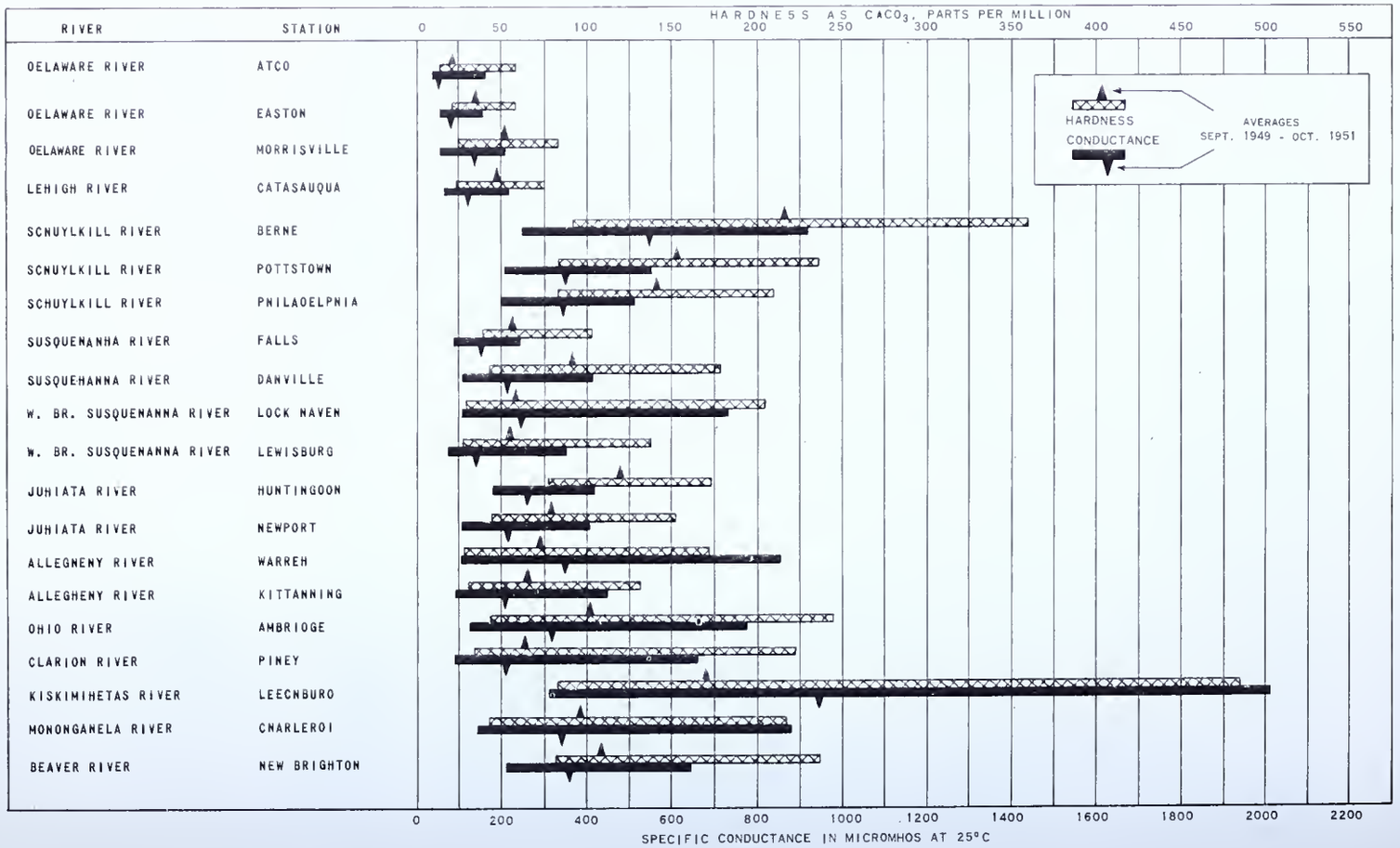


FIGURE II

SOURCES OF INFORMATION ABOUT STREAM-FLOW STATIONS IN PENNSYLVANIA

Information about the location of stream-flow measuring stations in Pennsylvania, the drainage areas, average discharges, and extremes of discharge are available through the Division of Hydrography, Pennsylvania Department of Forests and Waters.

A gaging station, or stream-flow measurement station, is a selected section in a stream channel equipped with facilities through which continuous discharge records may be developed. Basic data systematically collected at such stream-flow measurement stations consist of records of stage, measurements of discharge, and other general information needed to supplement the gage height record in determining the instantaneous and daily mean flow. Records of stage are obtained either by direct readings on a nonrecording gage, such as a staff or wire-weight gage, or from a water-stage recorder. Discharge measurements are computed from the depth and mean velocity of the water obtained at a number of selected points (usually 20 or more) in a section across a stream channel. The technical procedure followed and the time consumed in making a discharge measurement depends upon local conditions, the method used in determining the mean velocity, and the manner in which the sounding is made. Discharge measurements are made from bridge, cableway, boat, or by wading, using special equipment developed by the Geological Survey. Where unstable banks and channels are prevalent, frequent discharge measurements must be made to assure accurate records. The number required depends upon the local conditions and may vary from one measurement each month to one measurement or more each day during extreme high water. The equipment and methods perfected by the Geological Survey for stream-flow measurements are described in "Stream-Gaging-Procedure—A Manual Describing Methods and Practices of the Geological Survey," 1943 Geological Survey Paper 888.

As a few technical terms commonly used in describing water-resource and related investigations may be unfamiliar to the reader, a brief description follows:

SECOND-FEET is a short form for cubic feet per second. A second-foot is the rate of discharge equivalent to that of a stream whose channel is one square foot in cross-sectional area and whose average velocity is one foot per second.

RUNOFF is the portion of precipitation that appears as flow in a stream, usually expressed in inches of water depth.

DISCHARGE is the rate of flow of water, or other fluid, in a channel past a given point per unit of time, usually expressed in second-feet, gallons per minute, or gallons per day. One second-foot flowing for 24 hours = 86,400 cubic feet = 646,317 gallons = 1.983471 acre feet.

DRAINAGE AREA is the area drained by a stream or stream system upstream from some designated point, usually expressed in square miles.

GAGE: (1) A staff or wire-weight graduated to indicate the elevation of a water surface above the datum; (2) a device for producing a graphic record of the rise and fall of a water surface with respect to time; usually called a water-level or water-stage recorder.

GAGE-HEIGHT is the elevation of a water surface above or below a datum corresponding to the zero of the staff or other type of gage by which the height is indicated.

WATER YEAR is the year beginning October 1 and ending the following September 30 used by the U. S. Geological Survey in its reports. This period is used rather than the calendar year to facilitate studies of runoff. The climatological year coincides more closely with the water year than with the calendar year.

BIBLIOGRAPHY OF WATER SUPPLIES AND THEIR TREATMENT

The list of publications which follows is a check list of certain books or pamphlets which have been found useful and valuable with reference to water supplies and their treatment. These or similar publications are available for consultation in many public and university libraries. These libraries may also have such publications as the Journal of the American Water Works Association, the Journal of the New England Water Works Association, and other periodicals which contain articles relating to water supplies and water treatment.

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(Samples collected at Narrowsburg, N. Y.)

Chemical analyses, in parts per million, water year October 1949 to September 1950

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$	
																		Total	Non-carbonate
Oct. 1-10, 1949	862	58	3	6.7	70.5	--	--	--	--	--		22	10	3	--	.6	--	25	7
Oct. 11-20,	577	57	4	6.7	71.8	--	--	--	--	--		24	11	2	--	.9	--	26	6
Oct. 21-31,	651	53	2	6.7	71.8	--	--	--	--	--		23	11	2	--	.7	--	26	7
Nov. 1-10,	1,346	47	0	6.8	68.8	--	--	--	--	2.7		20	10	2	--	.3	--	24	8
Nov. 11-20,	2,456	45	0	6.7	61.1	--	--	--	--	2.0		14	11	2	--	.9	--	22	11
Nov. 21-30,	1,099	32	1	6.7	61.2	--	--	--	--	--		14	14	2	--	1.2	--	22	11
Dec. 1-10,	1,536	33	2	6.7	61.6	--	--	--	--	--		16	14	--	--	1.2	--	22	9
Dec. 11-20,	8,669	36	3	6.7	52.0	--	--	--	--	--		10	9.5	2	--	2.1	--	20	12
Dec. 21-31,	6,740	36	3	6.6	60.9	--	--	--	--	--		10	11	1	--	1.6	--	18	10
Jan. 1-10, 1950	7,223	40	1	6.8	58.7	--	--	--	--	--		16	10	2	--	1.6	--	18	5
Jan. 11-20,	7,470	33	5	6.8	52.0	--	--	--	--	--		11	11	2	--	1.9	--	18	9
Jan. 21-31,	3,938	33	10	6.4	56.3	--	--	--	--	--		12	9.0	2	--	1.0	--	21	11
Feb. 1-10,	3,017	--	12	6.5	60.8	--	--	--	--	--		14	10	2	--	1.2	--	25	14
Feb. 11-20,	3,954	--	--	--	--	--	--	--	--	--		--	--	--	--	--	--	--	--
Feb. 21-28,	2,126	--	--	--	--	--	--	--	--	--		--	--	--	--	--	--	--	--
Mar. 1-10,	4,630	--	10	7.2	58.8	--	--	--	--	--		10	11	1	--	2.7	--	22	14
Mar. 11-20,	5,787	--	5	7.4	162	--	--	--	--	--		42	16	7	--	7.8	--	60	26
Mar. 21-28, 31,	7,411	39	5	7.2	52.7	--	--	--	--	--		10	11	1	--	2.1	--	19	11
Mar. 29, 30,	33,050	43	60	8.4	2120	--	--	--	--	--		275	110	260	--	3.0	--	88	0
Apr. 1-10,	20,336	43	10	7.3	45.0	--	--	--	--	--		8	9.8	0	--	1.8	--	17	10
Apr. 11-20,	5,681	45	6	7.4	48.0	--	--	--	--	--		10	10	0	--	1.4	--	17	9
Apr. 21-30,	6,564	48	5	6.4	46.8	--	--	--	--	--		6	9.5	2	--	.8	--	17	12
May 1-10,	5,523	54	10	6.5	50.5	--	--	--	--	--		11	9.8	1	--	.8	--	18	9
May 11-16, 19-20,	4,020	68	5	6.6	52.6	--	--	--	--	--		13	10	1	--	.8	--	20	9
May 17,	2,720	59	--	8.7	1100	--	--	--	--	257		358	40	59	--	.4	--	66	0
May 18,	2,980	56	15	6.5	125	--	--	--	--	--		--	--	--	--	--	--	30	--
May 21-31,	4,435	61	5	6.7	51.0	--	--	--	--	--		12	9.6	1	--	.7	--	19	9
June 1-10,	3,661	66	5	6.7	55.3	--	--	--	--	--		16	9.0	1	--	1.1	--	21	8
June 11-20,	2,882	64	5	6.8	55.0	--	--	--	--	--		16	9.0	1	--	1.0	--	20	8
June 21, 25-30,	2,775	72	5	6.8	56.2	--	--	--	--	--		16	8.3	1	--	1.1	--	21	8
June 22,	2,700	70	--	6.3	1380	--	--	--	--	--		34	95	200	--	2.1	--	83	55
June 23,	2,410	70	--	6.5	392	--	--	--	--	--		54	30	46	--	.5	--	57	13
June 24,	2,150	74	10	6.3	117	--	--	--	--	--		25	17	6	--	.8	--	26	6
July 1-10,	1,726	76	5	6.9	57.8	--	--	--	--	--		17	9.0	1	--	.9	--	20	6
July 11-20,	2,098	75	10	6.7	54.5	--	--	--	--	--		17	8.0	1	--	1.3	--	22	8
July 21-31,	1,853	75	1	6.6	56.7	--	--	--	--	1.7		17	8.5	1	--	.6	--	21	7
Aug. 1-10,	1,987	76	1	6.6	59.5	--	--	--	--	1.2		18	7.5	1	--	.7	--	22	7
Aug. 11,12,14-20,	1,214	72	3	6.8	62.1	--	--	--	--	1.3		19	9.0	1	--	.7	--	24	8
Aug. 13,	915	75	10	6.3	115	--	--	--	--	13		41	13	6	--	.3	--	28	0
Aug. 21-30,	1,809	76	1	6.8	60.2	--	--	--	--	3.3		20	9.5	1	--	.7	--	21	5
Aug. 31,	1,150	78	5	8.7	2250	--	--	--	--	664		1100[a]	227	217	--	.8	--	55	0
Sept. 1,3-5,7-10,	1,918	72	1	7.0	64.1	--	--	--	--	64.1		21	10	1	--	.1	--	22	5
Sept. 2,	3,850	74	5	7.4	906	--	--	--	--	--		298	34	90	--	1.2	--	77	0
Sept. 6,	1,880	74	1	6.5	153	--	--	--	--	--		45	19	8	--	2.0	--	54	17
Sept. 11-20,	1,575	64	1	7.0	62.6	--	--	--	--	--		21	10	1	--	.3	--	22	5
Sept. 21,22,27-30,	8,953	68	1	7.2	64.9	--	--	--	--	--		22	10	1	--	.2	--	23	5
Sept. 23-26,	9,835	59	420	8.8	5880	--	--	--	--	1840		3680[b]	278	490	--	7.0	--	15	0
Average	4,069	57	6	6.9	97.0	--	--	--	--	--		19	16	4	--	1.4	--	30	8

a/ Includes 285 ppm CO_3
b/ Includes 697 ppm CO_3

DELAWARE RIVER AT ATCO, PA.
(Samples collected at Nerrowsburg, N. Y.)

Chemical analyses, in parts per million, water year October 1950 to September 1951

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Non-carbonate
Oct. 1-10, 1950----	664	62	1	7.1	67.8	--	--	--	--	--		23	10	2.0	--	.2	--	23	4
Oct. 11-20,--------	801	57	1	7.0	68.9	--	--	--	--	--		23	10	2.0	--	.2	--	24	5
Oct. 21-31,--------	595	53	3	7.0	68.6	--	--	--	--	4.3		24	10	2.0	--	.5	--	24	4
Nov. 1-10,---------	1652	51	3	6.7	65.5	--	--	--	--	3.4		20	11	2.0	--	.8	--	24	8
Nov. 11-20,--------	1337	44	3	6.7	60.8	--	--	--	--	3.5		19	10	2.0	--	.9	--	22	6
Nov. 21-30,--------	13120	39	7	6.2	53.0	--	--	--	--	2.2		10	10	1.0	--	2.1	--	17	9
Dec. 1-10,---------	1635	38	18	6.3	48.7	--	--	--	--	--		13	9.8	2.2	--	.5	--	15	4
Dec. 11-20,--------	5142	34	8	6.6	57.7	--	--	--	--	--		11	11	2.8	--	.5	--	19	10
Dec. 21-28,30,31,--	2031	--	--	--	--	--	--	--	--	--		--	--	--	--	--	--	--	--
Dec. 29,-----------	1682	--	5	6.4	73.9	--	--	--	--	--		15	12	4.0	--	.2	--	24	12
Jan. 1-10, 1951----	5269	--	--	--	--	--	--	--	--	--		--	--	--	--	--	--	--	--
Jan. 11-17,19,20,--	3888	--	--	--	--	--	--	--	--	--		--	--	--	--	--	--	--	--
Jan. 18,-----------	3901	32	7	6.8	52.0	--	--	--	--	--		13	9.8	2.8	--	.3	--	17	6
Jan. 21-23,27,30,31	5309	--	--	--	--	--	--	--	--	--		--	--	--	--	--	--	--	--
Jan. 24-26, 28,----	10556	--	17	6.2	47.3	--	--	--	--	--		11	9.8	2.1	--	.3	--	16	7
Feb. 1, 4-10,------	6872	--	--	--	--	--	--	--	--	--		--	--	--	--	--	--	--	--
Feb. 2-3,----------	13207	32	17	6.8	45.4	--	--	--	--	--		9	9.2	1.9	--	.2	--	15	8
Feb. 11,13-17,19,20	6186	--	--	--	--	--	--	--	--	--		--	--	--	--	--	--	--	--
Feb. 12,18---------	4986	34	5	6.7	52.8	--	--	--	--	--		12	9.8	5.0	--	2.2	--	16	6
Feb. 21-28,--------	9039	36	4	6.6	45.8	--	--	--	--	--		10	10	3.0	--	1.4	--	14	6
Mar. 1-10,---------	4500	35	2	6.8	51.2	--	--	--	--	--		16	10	4.0	--	1.2	--	16	3
Mar. 11-20,--------	5309	38	10	6.6	49.3	--	--	--	--	2.0		10	8	2.0	--	1.3	--	16	8
Mar. 21-28,30,31,--	13724	41	10	6.5	46.3	--	--	--	--	2.2		9	8	2.0	--	1.5	--	15	8
Mar. 29,-----------	7294	46	20	8.5	917	--	--	--	--	96		86[a/]	30	92	--	.8	--	24	0
Apr. 1-10,---------	12652	45	5	6.5	45.8	--	--	--	--	3.2		9	9	2.0	--	1.7	--	14	7
Apr. 11-20,--------	8068	46	10	6.6	47.3	--	--	--	--	2.7		10	8.5	2.0	--	1.2	--	15	7
Apr. 21-30,--------	4184	52	10	6.8	51.0	--	--	--	--	2.5		14	7.5	2.0	--	.5	--	17	6
May 1-10,----------	3266	58	7	6.7	55.0	--	--	--	--	2.9		15	9.5	1.0	--	.8	--	18	6
May 11-20,---------	1528	60	8	6.7	59.7	--	--	--	--	3.0		18	9.5	1.0	--	.7	--	20	5
May 21-31,---------	1388	65	7	6.7	65.3	--	--	--	--	2.6		18	9.0	2.0	--	1.0	--	22	7
June 1-10,---------	1145	69	5	6.9	61.0	--	--	--	--	1.4		18	7.0	1.0	--	.8	--	21	6
June 11-20,--------	1093	66	5	6.8	63.1	--	--	--	--	2.6		21	9.0	1.0	--	.8	--	23	6
June 21-30,--------	1179	74	5	7.1	64.1	--	--	--	--	2.6		21	7.0	1.0	--	.8	--	24	4
July 1-10,---------	1701	70	5	7.1	61.1	--	--	--	--	3.1		20	9.0	1.0	--	.7	--	21	5
July 11-20,--------	1346	76	7	7.1	62.7	--	--	--	--	2.8		23	8.5	2.0	1.2	.7	--	25	6
July 21-31,--------	2623	73	10	6.9	58.5	--	--	--	--	2.0		19	8.0	2.0	--	.9	--	23	7
Aug. 1-10,---------	1412	71	8	7.1	62.5	--	--	--	--	1.7		22	9.0	2.0	--	.7	--	27	9
Aug. 11-20,--------	1423	75	10	7.0	63.5	--	--	--	--	3.0		22	9.0	2.5	--	.7	--	25	7
Aug. 21-31,--------	938	70	6	7.1	67.8	--	--	--	--	3.4		22	9.0	4.0	--	.3	--	26	8
Sept. 1-10,--------	856	65	5	7.1	69.0	--	--	--	--	--		24	9.0	3.0	--	.3	--	24	4
Sept. 11-20,-------	1151	69	10	6.7	66.7	--	--	--	--	--		23	6.0	3.0	--	.3	--	25	6
Sept. 21-30,-------	749	69	12	6.7	66.4	--	--	--	--	--		22	11	3.0	--	.6	--	26	8
Average--------	4129	54	8	6.8	58.4	--	--	--	--	2.7		17	9.2	2.2	--	.8	--	20	7

Chemical analyses, in parts per million, water year October 1950 to September 1951

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Noncarbonate
Oct. 1-10, 1950		61	1	6.8	63.4	1.8	.00	7.4	1.5	1.8	.8	20	11	2.2	.1	.6	38	25	8
Oct. 11-20,		56	2	6.9	68.9	5.6	.01	7.4	1.6	2.7	.9	22	10	2.5	.1	.7	46	25	7
Oct. 21-23, 25-31		53	1	7.1	68.3	3.3	.07	7.5	1.7	3.5	1.5	23	10	2.8	.1	.6	44	26	7
Oct. 24,		54	2	8.8	101	4.3	--	10	2.2	7.9		44[a]	10	3.0	--	.5	--	34	0
Nov. 1-10,		52	2	6.9	66.5	3.3	.02	7.4	1.6	3.2	1.2	21	10	2.8	.1	.8	42	25	8
Nov. 11-20,		42	2	6.9	63.7	3.4	.08	6.8	1.6	2.8	1.1	17	10	3.0	.1	.9	39	24	10
Nov. 21-27, 29, 30		38	2	6.8	62.5	7.0	.04	6.6	1.6	3.2	1.1	16	9.5	3.9	.1	1.3	45	23	10
Nov. 28,		40	3	8.4	88.9	4.0	--	8.0	1.7	9.1		38[b]	11	2.0	--	1.5	--	27	0
Dec. 1-10,		37	2	6.5	48.5	3.7	.08	4.8	1.3	1.9	.9	9	10	1.9	.1	1.6	35	17	10
Dec. 11-20,		34	2	6.7	50.4	4.0	.07	5.2	1.5	1.7	.8	10	10	2.5	.1	1.3	35	19	11
Dec. 21-31,		--	2	6.9	57.1	5.4	.07	5.7	1.4	2.5	.7	16	9.5	2.2	.1	1.4	38	20	7
Jan. 1-10, 1951		33	3	6.5	55.6	4.2	.02	5.7	1.3	2.1	.6	13	10	2.0	.1	1.6	38	20	9
Jan. 11-20,		33	5	6.6	54.0	5.5	.03	5.6	1.3	1.9	.6	12	10	2.0	.1	1.4	39	19	9
Jan. 21-31,		33	5	6.5	49.7	3.5	.03	4.8	1.1	1.8	.6	9	10	2.0	.1	1.0	35	16	9
Feb. 1-10,		32	5	6.7	50.5	4.0	.02	4.8	1.3	1.8	.6	10	10	2.0	.1	1.4	37	17	9
Feb. 11-20,		34	5	6.6	46.5	4.2	.02	4.6	1.2	1.4	.6	9	9.5	2.0	.1	.8	35	16	9
Feb. 21-28,		28	10	6.6	44.4	3.2	.03	4.7	1.1	1.4	.6	9	9.5	1.6	.1	1.3	33	16	8
Mar. 1-10,		33	5	6.8	48.2	3.5	.04	4.8	1.0	2.0	.6	11	8.5	2.4	.2	.8	34	16	7
Mar. 11-20,		38	5	6.8	46.6	2.8	.02	4.8	1.3	1.4	.6	11	9.0	2.4	.2	.8	32	17	8
Mar. 21-31,		38	5	6.8	45.7	3.7	.03	4.8	1.1	2.0	.6	10	10	2.2	.2	.7	31	16	8
Apr. 1-10,		45	15	6.6	44.7	3.3	.02	4.4	1.0	1.0	.3	7	8.5	1.8	.4	1.3	31	15	9
Apr. 11-20,		46	10	6.5	46.9	4.2	.02	5.0	1.1	1.3	.3	10	8.0	1.8	.4	1.0	34	17	9
Apr. 21-30,		44	15	6.6	48.0	3.8	.02	5.0	1.0	1.5	.3	10	8.5	1.9	.4	.7	34	17	8
May 1-10,		57	10	6.7	52.3	2.1	.02	5.6	1.1	1.4	.5	13	9.0	2.0	.4	.5	35	18	8
May 11-20,		64	5	6.9	60.8	3.0	.00	6.8	2.1	1.5	1.0	19	11	1.1	.4	.8	40	26	10
May 21-31,		66	10	6.9	57.0	3.7	.02	6.6	1.1	1.7	.9	15	9.0	2.0	.1	1.1	35	21	9
June 1-10,		66	10	6.9	55.5	4.4	.03	6.2	1.8	1.6	.8	16	9.8	1.8	.1	.9	41	23	10
June 11-20,		68	10	6.9	54.3	3.1	.02	6.2	1.4	1.6	.9	15	9.0	1.8	.1	.8	39	21	9
June 21-30,		71	9	6.9	54.6	3.7	.01	6.4	1.1	1.9	.7	15	9.2	1.5	.1	.8	38	20	8
July 1-10,		73	15	6.9	59.6	5.7	.07	6.6	1.6	1.8	.8	16	9.2	2.8	.1	1.0	42	23	10
July 11-20,		76	10	7.0	58.4	2.9	.03	6.6	1.6	1.7	.8	18	8.8	2.1	.1	.7	40	23	7
July 21-31,		76	10	7.0	56.7	4.2	.03	6.6	1.4	1.6	.9	17	8.8	1.8	.1	1.0	40	22	8
Aug. 1-10,		74	5	7.2	59.6	2.7	.00	7.0	1.3	2.0	.8	19	9.5	2.1	.1	1.1	40	23	7
Aug. 11-20,		76	5	7.0	57.3	3.3	.00	7.0	1.1	2.2	.7	19	9.8	2.2	.2	.7	40	22	6
Aug. 21-31,		73	8	7.0	59.2	2.1	.00	6.8	1.5	1.8	.8	19	10	2.1	.1	.6	38	23	8
Sept. 1-10,		67	8	7.0	61.7	2.1	.05	7.4	1.6	2.2	.7	20	9.8	2.5	.1	.7	40	25	9
Sept. 11-20,		70	9	6.8	59.7	3.0	.00	8.4	.7	1.8	.8	19	10	2.1	.1	.6	38	24	8
Sept. 21-30,		67	6	7.2	60.2	2.3	.00	7.6	1.0	1.9	.7	20	9.5	2.5	.1	.5	40	23	7
Average		53	6	6.9	57.6	3.6	.03	6.3	1.4	1.9	.8	16	9.6	2.2	.2	.9	38	21	8

a/ Contains 5 ppm CO_3
b/ Contains 2 ppm CO_3

DELAWARE RIVER AT EASTON, PENNSYLVANIA

Chemical analyses, in parts per million, water year October 1949 to September 1950

Data of collaction	Maan discharga (second-feat)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfata (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrata (NO_3)	Dissolved solids	Hardness as $CaCO_3$	
																		Total	Noncarbonate
Oct. 1-10, 1949---	1,811	--	6	6.7	107	2.1	.02	12	3.1	4.7		37	13	6.0	.1	.4	68	43	12
Oct. 11-20,-------	1,380	--	8	7.6	114	3.2	--	--	--	5.5		42	16	3.1	--	.6	--	44	10
Oct. 21-31,-------	1,321	--	5	7.3	117	2.6	--	--	--	5.1		42	16	3.2	--	.7	--	45	11
Nov. 1-10,--------	2,318	--	8	7.4	104	2.4	--	--	--	4.1		35	15	3	--	.6	--	40	11
Nov. 11-20,-------	3,601	--	8	7.3	88.5	2.9	--	--	--	3.1		28	14	3.1	--	1.0	--	36	13
Nov. 21-30,-------	3,403	--	5	6.9	87.4	--	--	--	--	3.6		27	14	1.4	--	1.4	--	32	10
Dec. 1-10,--------	2,819	--	5	7.0	88.3	--	--	--	--	3.7		27	13	2.2	--	1.7	--	32	10
Dec. 11-20,-------	11,499	--	7	6.7	74.5	--	--	--	--	2.6		19	13	2.6	--	2.3	--	29	13
Dec. 21-31,-------	10,328	--	8	7.0	71.0	--	--	--	--	2.9		16	13	3.5	--	2.1	--	27	14
Jan. 1-10, 1950---	11,163	--	8	6.8	70.3	--	--	--	--	1.9		16	13	2.2	--	1.8	--	27	14
Jan. 11-20,-------	12,981	--	8	6.8	67.7	5.3	.02	7.6	1.9	2.3		15	14	2.4	.1	1.4	45	27	14
Jan. 21-31,-------	7,364	--	7	7.0	76.1	--	--	--	--	2.3		20	13	2.6	--	1.7	--	30	14
Feb. 1-10,--------	6,922	--	9	7.1	86.0	--	--	--	--	2.3		23	15	2.6	--	1.1	--	34	15
Feb. 11-20,-------	9,646	--	9	7.2	94.4	--	--	--	--	1.7		24	17	2.6	--	2.1	--	39	19
Feb. 21-28,-------	6,629	--	8	7.3	101	--	--	--	--	--		30	18	3.0	--	1.6	--	41	16
Mar. 1-10,--------	9,497	--	8	7.3	96.3	--	--	--	--	--		29	15	2.9	--	2.0	--	39	15
Mar. 11-20,-------	13,859	--	7	7.0	76.7	--	--	--	--	--		19	13	2.1	--	1.8	--	30	14
Mar. 21-31,-------	24,982	--	6	6.7	76.3	--	--	--	--	3.7		23	14	2.0	--	2.3	--	30	11
Apr. 1-10,--------	36,520	--	6	6.8	55.8	5.2	.05	6.2	1.6	2.8		15	12	1.5	.0	1.6	43	22	10
Apr. 11-20,-------	11,615	--	4	7.0	70.6	--	--	--	--	3.1		23	12	1.6	--	1.4	--	28	9
Apr. 21-30,-------	11,847	--	4	7.0	68.9	--	--	--	--	1.7		20	12	1.4	--	1.1	--	28	12
May 1-10,---------	10,881	--	8	6.9	71.7	--	--	--	--	2.0		22	11	1.5	--	1.0	--	28	10
May 11-20,--------	8,265	--	11	7.0	75.9	--	--	--	--	1.4		23	11	1.6	--	.7	--	30	11
May 21-31,--------	10,921	--	13	7.0	79.9	--	--	--	--	2.4		25	12	1.6	--	1.1	--	31	10
June 1-10,--------	10,963	--	17	6.8	85.0	--	--	--	--	5.8		29	13	1.6	--	1.3	--	28	4
June 11-20,-------	7,358	--	12	6.8	89.4	--	--	--	--	5.3		31	12	1.8	--	1.3	--	30	5
June 21-30,-------	6,300	--	13	6.8	86.8	--	--	--	--	5.5		29	12	1.8	--	1.3	--	28	4
July 1-10,--------	4,230	--	11	6.8	95.5	--	--	--	--	4.7		33	13	1.8	--	1.4	--	34	7
July 11-20,-------	6,417	--	15	6.9	105	--	--	--	--	4.6		37	15	4.5	--	2.1	--	44	14
July 21-31,-------	4,587	--	12	7.4	98.8	--	--	--	--	2.4		33	12	2.0	--	1.0	--	38	11
Aug. 1-10,--------	4,177	--	12	6.6	91.9	--	--	--	--	3.3		34	13	1.9	--	1.3	--	38	10
Aug. 11-20,-------	2,665	--	7	7.3	105	--	--	--	--	3.1		38	13	2.4	--	.7	--	42	11
Aug. 21-31,-------	3,535	--	9	7.2	96.0	--	--	--	--	2.2		34	12	2.0	--	.8	--	39	11
Sept. 1-10,-------	3,259	--	9	7.2	95.4	--	--	--	--	2.3		35	11	2.2	--	.9	--	39	10
Sept. 11-20,------	3,652	--	4	7.2	96.0	--	--	--	--	--		36	12	1.1	--	.6	--	39	10
Sept. 21-30,------	2,487	--	4	7.4	97.1	--	--	--	--	--		37	11	2.5	--	.4	--	41	11
Avaraga--------	8,111	--	11	6.8	88.0	--	--	--	--	--		28	13	2.4	--	1.3	--	34	11

Chemical analyses, in parts per million, water year October 1950 to September 1951

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$	
																		Total	Non-carbonate
Oct. 1-10, 1950	1,827		3	7.4	106	3.0	.04	12	3.6	2.9		41	13	2.5	.0	.3	63	45	11
Oct. 11-20,	2,214		4	7.3	103	---	---	--	---	---		37	12	3.0	--	.3	--	40	10
Oct. 21-31,	1,824		3	7.4	110	---	---	--	---	---		41	12	3.2	--	.2	--	40	6
Nov. 1-10,	3,162		6	7.4	106	---	---	--	---	---		38	13	3.1	--	.3	--	41	10
Nov. 11-20,	2,872		5	7.5	93.1	---	---	--	---	---		32	12	3.1	--	.5	--	35	9
Nov. 21-30,	25,080		21	7.2	76.7	---	---	--	---	---		20	11	2.4	--	1.2	--	28	12
Dec. 1-10,	34,632		11	7.4	65.4	4.2	.02	7.6	1.9	.3		14	11	1.9	.2	1.7	48	27	15
Dec. 11-20,	15,018		9	7.3	79.8	---	---	--	---	---		21	13	3.2	--	1.6	--	30	13
Dec. 21-31,	6,257		10	7.3	91.9	---	--	--	---	---		30	14	2.1	--	1.7	--	36	11
Jan. 1-10, 1951	10,711		6	7.2	83.9	---	---	--	---	---		27	14	2.5	--	.9	--	33	11
Jan. 11-20,	10,312		9	7.2	84.6	---	---	--	---	---		25	15	2.4	--	.7	--	33	12
Jan. 21-31,	17,935		11	7.0	70.0	---	---	--	---	---		19	13	2.1	--	.4	--	27	11
Feb. 1-10,	19,106		7	7.5	74.0	---	---	--	---	3.1		19	13	2.2	--	2.0	--	27	11
Feb. 11-20,	16,442		7	7.5	76.3	---	---	--	---	2.3		21	12	2.2	--	1.6	--	29	12
Feb. 21-28,	23,100		8	7.4	71.0	---	---	--	---	2.4		18	12	2.0	--	1.6	--	26	11
Mar. 1-10,	13,125		7	7.5	79.1	---	---	--	---	2.5		22	13	2.1	--	1.2	--	30	12
Mar. 11-20,	13,642		7	7.3	76.9	---	---	--	---	2.3		21	12	3.0	--	1.3	--	30	13
Mar. 21-31,	26,482		4	7.6	73.9	---	---	--	---	2.6		18	12	3.9	--	1.1	--	28	13
Apr. 1-10,	34,424		5	7.6	70.0	---	---	--	---	2.5		18	11	3.1	--	1.2	--	26	11
Apr. 11-20,	19,240		6	7.4	72.7	---	---	--	---	2.8		22	11	2.9	--	.6	--	28	10
Apr. 21-30,	10,976		4	7.4	79.4	---	---	--	---	4.5		28	12	2.5	--	.9	--	30	7
May 1-10,	6,601		4	7.4	89.1	---	---	--	---	3.6		30	12	3.6	--	.7	--	35	10
May 11-20,	4,884		5	7.4	94.7	---	---	--	---	2.9		32	12	5.0	--	.7	--	40	14
May 21-31,	5,369		8	7.2	106	---	---	--	---	3.1		39	14	2.4	--	1.0	--	44	12
June 1-10,	5,324		9	7.1	94.3	---	---	--	---	4.1		34	13	2.0	--	1.0	--	36	8
June 11-20,	4,902		7	7.2	99.7	---	---	--	---	4.4		38	14	2.2	--	.9	--	40	9
June 21-30,	4,810		7	7.1	99.0	---	---	--	---	2.7		32	14	2.4	--	.9	--	39	13
July 1-10,	5,174		11	7.3	93.1	---	---	--	---	3.0		32	13	2.1	--	1.0	--	37	11
July 11-20,	3,928		8	7.2	95.5	---	---	--	---	2.0		32	13	2.1	--	.8	--	39	13
July 21-31,	6,165		11	7.2	1[illegible]	---	---	--	---	2.5		34	15	2.0	--	1.4	--	42	14
Aug. 1-10,	4,099		5	7.6	125	---	---	--	---	3.5		45	18	1.8	--	1.9	--	52	15
Aug. 11-20,	4,520		6	7.6	132	5.0	.03	16	5.2	1.2		47	18	3.0	.1	2.8	82	61	23
Aug. 21-31,	3,068		4	7.7	129	---	---	--	---	2.2		45	18	3.0	--	1.5	--	55	18
Sept. 1-10,	2,387		9	7.7	129	---	---	--	---	3.7		47	17	3.4	--	1.4	--	54	16
Sept. 11-20,	3,223		4	7.8	114	---	---	--	---	3.7		42	16	2.9	--	1.1	--	48	14
Sept. 21-30,	2,089		7	7.7	122	---	---	--	---	3.7		44	17	3.2	--	1.1	--	51	15
Average	10,290		7	7.4	93.6	---	---	--	---	2.9		31	13	2.7	--	1.1	--	37	12

DELAWARE RIVER AT MORRISVILLE, PA.
(At Trenton Water Works Raw-Water Intake)

Chemical analyses, in parts per million, water year October 1949 to September 1950

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$	
																		Total	Non-carbonate
Oct. 1-10, 1949	3,312	54	6	6.9	132	--	--	--	--	--		52	27	7.8	--	2.5	--	68	25
Oct. 11-20,	2,559	64	6	6.9	169	--	--	--	--	--		56	28	8.4	--	2.2	--	74	28
Oct. 21-31,	2,510	56	7	7.0	205	--	--	--	--	--		59	31	10	--	2.5	--	83	35
Nov. 1-10,	3,825	52	7	6.9	181	--	--	--	--	--		49	27	10	--	2.4	--	68	28
Nov. 11-20,	5,289	51	10	6.9	147	--	--	--	--	--		38	25	5.6	--	2.9	--	56	25
Nov. 21-30,	4,868	40	10	7.1	129	--	--	--	--	--		34	21	5.0	--	3.1	--	50	22
Dec. 1-10,	4,292	36	8	7.1	141	--	--	--	--	--		36	22	5.9	--	3.5	--	54	24
Dec. 11-14,	8,375	36	8	7.2	155	--	--	--	--	--		39	26	6.5	--	4.0	--	58	26
Dec. 15-20,	16,570	38	8	6.5	84.9	--	--	--	--	--		16	16	2.8	--	3.3	--	32	19
Dec. 21-31,	14,730	40	8	6.8	101	--	--	--	--	--		22	19	3.5	--	3.7	--	38	20
Jan. 1-10, 1950	14,570	41	7	6.7	97.3	--	--	--	--	--		22	18	3.5	--	3.2	--	36	18
Jan. 11-20,	17,420	37	7	6.7	89.6	--	--	--	--	--		18	18	3.5	--	3.3	--	34	19
Jan. 21-31,	10,000	43	7	6.9	109	--	--	--	--	--		25	19	4.2	--	3.0	--	42	22
Feb. 1-10,	10,880	37	4	7.1	125	--	--	--	--	--		29	23	4.5	--	3.8	--	47	23
Feb. 11-20,	17,250	37	8	6.9	124	--	--	--	--	--		27	24	4.4	--	4.4	--	47	25
Feb. 21-28,	10,200	34	4	7.2	136	--	--	--	--	--		32	24	4.5	--	4.1	--	53	27
Mar. 1-10,	11,360	35	6	7.1	141	--	--	--	--	--		36	24	5.0	--	3.5	--	56	26
Mar. 11-20,	19,320	37	8	7.0	99.4	--	--	--	--	--		24	18	3.4	--	2.9	--	37	17
Mar. 21-31,	33,540	44	6	7.3	107	--	--	--	--	--		26	18	3.1	--	3.7	--	41	20
Apr. 1-10,	42,400	42	4	5.9	68.2	--	--	--	--	--		16	12	3.6	--	1.7	--	25	12
Apr. 11-20,	18,450	47	4	7.3	97.4	--	--	--	--	--		25	16	3.0	--	2.3	--	37	16
Apr. 21-30,	15,230	51	7	7.6	95.9	--	--	--	--	--		26	15	2.9	--	2.0	--	35	14
May 1-10,	14,230	55	8	7.0	100	--	--	--	--	--		28	17	3.0	--	1.6	--	38	15
May 11-20,	10,760	60	8	7.0	112	--	--	--	--	--		34	18	3.6	--	1.7	--	43	15
May 21-31,	15,490	61	10	7.0	101	--	--	--	--	--		29	17	2.9	--	1.8	--	39	15
June 1-10,	15,760	66	9	7.1	113	--	--	--	--	--		35	17	3.2	--	1.7	--	35	6
June 11-20,	10,350	68	7	7.0	127	--	--	--	--	--		40	18	4.0	--	1.6	--	42	9
June 21-30,	8,548	72	6	7.0	126	--	--	--	--	--		41	17	4.2	--	2.0	--	42	8
July 1-10,	6,557	76	6	7.0	146	--	--	--	--	--		43	21	4.6	--	1.8	--	50	15
July 11-20,	5,779	74	13	7.0	139	--	--	--	--	--		38	22	4.4	--	3.7	--	55	24
July 21-31,	5,494	75	8	7.1	146	--	--	--	--	--		44	22	4.9	--	1.7	--	58	22
Aug. 1-10,	5,805	74	6	7.1	150	--	--	--	--	--		43	22	4.9	--	2.5	--	57	22
Aug. 11-20,	4,810	76	7	7.1	169	--	--	--	--	--		50	24	6.0	--	2.6	--	65	24
Aug. 21-31,	5,109	75	7	7.1	157	--	--	--	--	--		43	21	6.0	--	2.8	--	60	25
Sept. 1-10,	4,293	72	6	7.3	162	--	--	--	--	--		50	23	6.0	--	2.8	--	62	21
Sept. 11-20,	5,563	67	8	7.4	174	--	--	--	--	--		52	24	6.0	--	2.8	--	65	22
Sept. 21-30,	8,907	62	5	7.6	178	--	--	--	--	--		56	25	7.2	--	2.1	--	66	20
Average	11,160	54	7	7.0	133	--	--	--	--	--		36	21	4.9	--	2.7	--	50	20

Chemical analyses, in parts per million, water year October 1950 to September 1951

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$	
																		Total	Non-carbonate
Oct. 1-10, 1950	2892	64	10	7.3	183	4.3	.03	18	6.1	7.6		57	26	7.2	.1	3.0	114	70	23
Oct. 11-20,	3540	61	8	7.3	184	5.9	.02	19	5.9	6.4		54	28	6.6	.2	2.8	119	72	27
Oct. 21-31,	3026	59	10	7.3	185	5.2	.02	18	6.5	6.8		54	27	7.9	.1	3.3	114	72	27
Nov. 1-10,	4705	59	10	7.1	174	4.4	.03	17	6.1	6.9		50	28	6.6	.1	3.4	106	68	27
Nov. 11-20,	4296	50	8	7.2	143	3.4	.03	14	4.8	6.5		42	23	5.5	.1	3.0	92	55	20
Nov. 21-26,	17305	49	4	7.2	154	3.2	.10	16	5.3	6.4		46	26	6.0	.0	3.0	92	62	24
Nov. 27-30,	58450	44	20	7.0	79.1	3.6	.09	8.3	2.7	3.4		19	16	3.0	.0	3.3	64	32	16
Dec. 1-10,	47420	43	16	7.0	88.1	4.0	.23	8.8	3.0	2.9		18	19	2.9	.0	2.5	59	34	20
Dec. 11-20,	22190	41	7	7.1	98.1	4.2	.09	9.8	3.4	4.2		25	20	3.0	.0	2.4	62	38	18
Dec. 21-31,	10118	38	5	7.2	127	4.7	.09	13	4.7	4.9		37	23	4.0	.0	3.3	78	52	22
Jan. 1-10, 1951	14117	39	12	7.0	113	4.4	.06	12	3.0	4.4		27	20	4.5	.0	3.2	72	42	20
Jan. 11-20,	15640	39	16	7.0	111	4.4	.10	11	3.5	5.6		26	23	4.5	.0	3.0	70	42	21
Jan. 21-31,	25082	39	16	7.1	96.1	4.2	.06	8.5	2.8	5.0		21	18	3.8	.1	2.4	62	33	16
Feb. 1-10,	28380	37	7	6.9	102	5.3	.06	11	3.2	2.2		26	16	3.2	.2	3.0	68	41	19
Feb. 11-20,	23580	39	4	6.9	100	4.4	.10	9.5	3.2	2.4		22	15	4.8	.0	2.1	68	37	19
Feb. 21-26,	34650	41	5	6.9	89.6	4.5	.12	9.1	3.1	1.4		18	15	4.2	.2	2.0	62	35	21
Feb. 27-28,	21950	44	3	6.7	245	---	--	25	2.6	---		15	17	48	--	1.6	--	73	61
Mar. 1-10,	18190	43	3	7.0	109	4.1	.10	11	3.7	1.9		26	17	4.4	.1	1.7	70	43	21
Mar. 11-20,	19200	44	6	7.2	101	9.7	.07	10	3.6	2.8		26	17	3.4	.1	2.1	63	40	18
Mar. 21-31,	30564	47	6	7.2	91.3	5.8	.08	9.5	3.1	2.6		25	15	2.8	.1	2.1	57	36	16
Apr. 1-10,	45940	49	9	7.2	81.4	5.8	.10	8.8	2.8	1.0		20	14	2.1	.1	1.9	53	33	17
Apr. 11-20,	26780	51	1	7.1	94.4	4.4	.08	9.8	3.4	1.6		25	16	2.6	.1	1.1	63	38	18
Apr. 21-30,	16070	56	1	7.3	109	3.6	.06	11	3.9	3.4		32	18	3.2	.2	1.1	70	44	17
May 1-10,	9991	62	3	7.8	127	2.4	.06	13	4.8	3.2	1.6	40	20	4.0	.1	2.1	75	52	19
May 11-20,	7530	64	4	7.6	139	2.2	.03	14	5.0	4.2	1.5	43	22	4.4	.1	2.5	83	56	20
May 21-31,	8120	67	5	7.5	153	3.3	.06	16	5.7	3.3		45	23	5.0	.1	2.9	92	63	26
June 1-10,	8687	71	10	7.7	126	5.4	.02	13	5.2	2.9		39	19	3.5	.1	4.1	79	54	22
June 11-20,	7678	67	9	7.7	139	5.5	.05	14	5.2	3.7		41	21	4.0	.1	3.8	87	56	23
June 21-30,	7781	76	4	7.4	147	4.6	.03	15	5.1	5.2		46	21	4.5	.1	4.4	87	58	21
July 1-10,	8338	73	4	7.4	138	6.3	.03	14	5.4	2.3		40	20	3.8	.1	3.8	85	57	24
July 11-20,	5853	78	3	7.4	149	4.3	.01	14	5.2	6.3		45	23	5.0	.1	2.5	88	56	20
July 21-31,	10592	76	4	7.4	149	5.4	.07	15	5.3	5.0		45	23	5.0	.1	2.4	90	59	22
Aug. 1-10,	7279	73	18	7.2	165	5.6	.01	17	5.8	4.6		52	21	6.0	.1	3.8	101	66	24
Aug. 11-20,	8186	76	6	7.3	175	8.7	.01	18	6.3	7.4		58	27	6.0	.1	3.2	109	71	23
Aug. 21-31,	5314	74	5	7.4	179	6.8	.01	19	6.6	5.6		58	26	7.0	.1	2.4	108	75	27
Sept. 1-10,	4128	71	6	7.4	188	4.3	.01	20	7.0	5.6		61	28	6.5	.1	3.0	113	79	29
Sept. 11-20,	4895	71	7	7.3	175	3.0	.01	18	6.7	5.2		56	25	6.5	.1	3.0	106	72	27
Sept. 21-30,	3594	67	3	7.4	185	3.2	.01	19	7.3	6.4		61	27	7.0	.1	3.8	113	77	27
Average	14730	56	7	7.2	137	4.7	.06	14	4.7	4.4		38	21	4.7	.1	2.8	84	54	23

LEHIGH RIVER AT CATASAUQUA, PENNSYLVANIA

Chemical analyses, in parts per million, water year October 1949 to September 1950

Data of collection	Maan discharga (sacondfaat)	Tamparature (°F.)	Color	pH	Spacific conductanca (Micromhos at 25°C.)	Silica (SiO_2)	Iron (Fa)	Calcium (Ca)	Magnasium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfata (SO_4)	Chlorida (Cl)	Fluoride (F)	Nitrata (NO_3)	Dissolvad solids	Hardnass as $CaCO_3$	
																		Total	Noncarbonata
Oct. 1-10, 1949---	758	59	3	6.7	138	5.1	.02	12	4.5	6.0		14	41	3.6	.2	2.1	87	48	37
Oct. 11-20,-------	581	61	6	6.8	160	6.3	.03	15	5.8	3.7		15	47	4.5	.1	1.8	96	61	49
Oct. 21-31,-------	603	52	6	6.7	162	6.1	.02	15	5.7	5.2		17	48	4.5	.1	2.2	102	61	47
Nov. 1-10,--------	840	47	4	6.5	126	—	--	--	--	—		13	37	3.4	--	1.8	--	49	38
Nov. 11-20,-------	1,020	45	4	6.8	124	5.6	.02	11	4.5	3.9		11	38	2.5	.1	2.5	74	46	37
Nov. 21-30,-------	814	36	4	6.8	118	5.4	.03	10	4.3	3.2		9	35	2.5	.1	2.4	69	43	35
Dec. 1-10,--------	713	33	4	6.9	130	5.5	.02	11	4.8	3.7		12	38	2.4	.1	2.7	76	47	37
Dec. 11-20,-------	1,844	34	6	6.2	103	5.8	.05	9.6	3.4	3.8		9	32	2.1	.1	2.9	72	38	31
Dec. 21-31,-------	2,606	38	8	6.3	92.6	5.7	.06	8.8	3.0	2.9		9	27	2.1	.1	2.4	58	34	27
Jan. 1-10, 1950---	2,903	40	6	6.5	90.3	5.0	.03	8.1	3.1	2.1		8	25	2.0	.1	2.4	60	33	26
Jan. 11-20,-------	2,702	36	5	6.4	89.5	5.0	.01	8.0	2.4	2.8		6	25	1.9	.1	2.4	51	30	25
Jan. 21-31,-------	1,694	38	5	6.4	99.4	5.1	.02	8.8	2.4	6.1		11	30	2.1	.1	2.0	62	32	23
Feb. 1-10,--------	2,283	35	5	6.5	105	5.5	.02	9.4	2.8	4.7		10	30	2.1	.1	3.2	67	35	27
Feb. 11-20,-------	3,455	37	4	6.8	104	5.4	.02	10	3.2	4.6		11	30	2.9	.1	4.4	67	38	29
Feb. 21-28,-------	1,645	32	4	6.6	114	5.0	.03	11	3.9	3.6		10	33	3.5	.2	4.0	70	44	35
Mar. 1-10,--------	2,157	33	5	6.4	115	6.0	.03	10	3.8	5.1		12	33	3.1	.1	3.4	71	41	31
Mar. 11-20,-------	2,643	35	7	6.3	89.0	5.3	.02	7.8	2.9	3.6		9	26	2.2	.1	1.7	55	31	24
Mar. 21-31,-------	6,100	40	6	6.7	86.0	5.0	.07	7.9	2.5	3.6		10	23	2.0	.1	3.3	55	30	22
Apr. 1-10,--------	4,539	42	4	6.1	70.3	4.2	.06	6.0	2.3	3.5		5	23	1.8	.1	1.4	45	24	20
Apr. 11-20,-------	2,135	44	4	6.4	94.5	4.1	.04	8.6	3.1	3.8		7	30	2.8	.1	1.6	59	34	28
Apr. 21-30,-------	1,870	49	7	6.6	90.8	3.8	.10	8.0	2.9	4.7		10	28	2.1	.2	1.4	56	32	24
May 1-10,--------	1,954	54	3	6.6	94.7	5.6	.10	10	4.3	--		8	27	1.9	.1	1.8	67	43	36
May 11-20,-------	1,646	57	2	6.5	110	6.8	.08	12	3.0	2.7		11	33	2.0	.1	2.1	75	42	33
May 21-31,-------	2,425	58	4	6.6	99.3	9.8	.06	9.8	3.0	3.3		15	26	1.9	.1	2.0	70	37	24
Juna 1-10,--------	2,595	63	6	5.8	91.6	5.3	.06	7.9	2.9	4.7		11	26	2.8	.1	2.0	57	32	23
Juna 11-20,-------	1,740	64	4	5.9	103	5.2	.04	8.8	3.2	5.1		11	30	3.0	.0	2.1	63	35	26
June 21-30,-------	1,114	68	4	6.0	122	4.8	.08	10	3.8	7.2		11	39	3.1	.1	2.4	74	41	32
July 1-10,--------	1,222	70	4	5.9	129	5.0	.03	11	4.1	5.1		12	37	3.2	.1	2.7	78	44	34
July 11-20,-------	1,650	70	8	6.1	117	5.5	.07	11	3.5	4.4		14	32	3.0	.1	2.8	72	42	30
July 21-31,-------	1,040	69	4	6.3	148	4.9	.02	13	4.5	6.2		15	43	3.1	.1	3.5	88	51	39
Aug. 1-10,--------	703	71	4	7.0	169	7.8	.02	16	5.6	6.1		21	49	3.6	.1	3.2	105	63	46
Aug. 11-20,-------	538	71	4	7.0	201	7.2	.01	18	6.6	8.3		24	59	3.9	.1	4.0	123	72	52
Aug. 21-31,-------	610	70	4	7.0	177	5.0	.02	16	5.9	6.5		21	50	3.6	.1	4.6	109	64	47
Sept. 1-10,-------	546	70	3	6.8	203	5.9	.05	19	6.7	7.0		26	57	4.0	.1	4.6	127	75	54
Sept. 11-20,------	961	62	4	6.8	150	5.3	.05	14	4.8	4.5		17	41	3.2	.1	3.8	93	55	41
Sept. 21-30,------	569	58	3	6.8	186	5.1	.04	17	5.8	7.4		22	53	3.6	.2	4.4	115	66	48
Average--------	1,698	51	5	6.5	122	5.6	.04	11	4.0	4.7		13	36	2.8	.1	2.7	76	44	34

Chemical analyses, in parts per million, water year October 1950 to September 1951

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$	
																		Total	Non-carbonate
Oct. 1-10, 1950	524	60	2	6.9	209	5.8	.03	19	6.4	9.4		27	60	4.0	.1	4.5	131	74	52
Oct. 11-20,	693	55	2	7.0	170	11	.04	14	5.6	7.5		21	47	4.1	.1	3.0	111	58	41
Oct. 21-31,	583	54	2	6.9	194	7.8	.06	17	7.3	6.3		22	57	3.9	.1	3.8	124	72	54
Nov. 1-5,	1060	57	2	6.9	191	4.8	.04	16	6.7	7.3		18	58	4.2	.0	3.6	121	67	53
Nov. 6-10,	1835	51	4	6.7	117	4.6	.05	9.7	4.1	4.5		11	34	3.1	.1	2.3	76	41	32
Nov. 11-20,	1094	43	4	6.7	149	5.3	.12	12	5.2	8.1		16	47	3.2	.0	3.1	95	51	38
Nov. 21-30,	6324	41	5	6.5	117	4.6	.13	11	3.8	6.0		15	36	2.9	.0	2.9	76	43	31
Dec. 1-10,	91336	40	7	6.1	94.4	4.3	.14	8.4	3.2	4.1		8	30	2.5	.0	2.1	62	34	28
Dec. 11-20,	3526	36	4	6.2	104	4.4	.15	9.4	3.7	3.7		8	34	2.2	.0	2.2	63	39	32
Dec. 21-31,	1813	32	3	6.1	125	4.8	.20	10	4.3	6.2		10	41	2.5	.0	2.1	80	43	34
Jan. 1-10, 1951	2230	34	5	6.7	105	5.1	.04	9.1	3.5	3.7		7	32	3.0	.0	2.3	70	37	29
Jan. 11-20,	2526	34	5	6.7	106	4.6	.04	9.6	3.3	3.2		9	29	3.2	.0	2.9	70	38	30
Jan. 21-31,	5011	35	7	6.6	85.4	4.2	.07	7.5	2.7	2.6		6	24	2.5	.1	2.2	57	30	25
Feb. 1-10,	5282	32	2	6.3	85.0	4.6	.06	8.0	2.6	1.4		7	22	2.2	.1	2.0	57	31	25
Feb. 11-20,	4065	36	3	6.5	83.0	4.4	.04	8.1	2.6	1.2		8	22	2.0	.0	1.4	57	31	24
Feb. 21-28,	4613	38	2	6.6	84.0	4.4	.04	8.2	2.5	1.1		7	22	2.1	.1	1.7	58	31	25
Mar. 1-10,	3119	39	4	6.6	93.9	5.8	.04	8.8	3.2	2.0		8	27	2.0	.0	2.6	60	35	29
Mar. 11-20,	3283	39	4	6.7	90.8	6.0	.04	9.0	3.1	1.8		10	25	2.0	.1	2.4	58	35	27
Mar. 21-31,	4568	42	3	6.6	81.0	5.4	.07	7.7	2.8	1.6		8	22	2.0	.0	2.3	51	31	24
Apr. 1-10,	4492	46	5	6.8	79.7	5.4	.07	6.6	2.8	2.6		9	21	1.9	.1	1.7	53	28	21
Apr. 11-20,	4222	46	6	6.8	87.5	4.4	.07	7.6	2.4	3.4	1.2	11	24	2.2	.0	2.3	56	29	20
Apr. 21-30,	2630	53	2	7.0	102	4.2	.03	9.0	3.3	4.2	1.2	12	31	2.1	.0	2.1	65	36	26
May 1-10,	1799	58	3	7.0	115	4.4	.02	10	4.1	4.2		14	33	2.2	.0	2.5	69	42	30
May 11-20,	1425	59	4	7.1	132	4.9	.02	12	4.8	4.7		15	39	2.8	.0	3.7	81	50	37
May 21-31,	1505	64	6	7.2	128	10	.03	11	4.4	3.8		12	37	2.6	.1	2.0	82	46	36
June 1-10,	1329	66	5	7.3	117	11	.03	10	3.7	4.3		12	32	3.2	.1	2.1	74	40	30
June 11-20,	1353	64	3	7.4	113	5.2	.03	10	3.7	5.5		14	32	3.2	.1	3.2	73	40	29
June 21-30,	1310	73	5	7.3	142	6.4	.04	13	4.5	7.3		18	41	4.2	.1	4.0	91	51	36
July 1-10,	1413	69	3	7.2	116	5.8	.05	11	4.2	4.5		16	34	3.0	.1	1.9	79	45	32
July 11-20,	998	73	3	7.3	152	5.1	.05	14	5.7	5.7		20	44	4.0	.1	3.4	98	58	42
July 21-31,	2655	71	4	7.5	148	7.3	.10	15	5.2	4.6		20	42	4.0	.1	3.6	98	59	42
Aug. 1-10,	1352	67	4	7.1	158	7.1	.07	14	6.5	5.2		17	46	5.5	.1	3.8	103	62	48
Aug. 11-20,	1756	71	4	7.2	144	5.8	.06	13	5.7	4.5		19	41	4.0	.1	1.9	90	56	40
Aug. 21-31,	991	68	5	7.4	167	6.1	.04	16	5.8	5.2		22	46	4.5	.1	3.0	104	64	46
Sept. 1-10,	819	67	5	7.4	176	6.4	.09	16	6.6	6.1		21	51	5.0	.1	3.0	110	67	50
Sept. 11-20,	784	69	3	7.4	166	8.0	.04	16	6.0	7.2		23	49	4.5	.1	5.1	109	65	46
Sept. 21-30,	597	64	4	7.4	195	6.3	.01	18	6.9	6.8		23	56	5.0	.1	4.4	115	73	54
Average	2516	53	4	6.9	128	5.8	.06	11	4.4	4.7		14	37	3.2	.1	2.8	82	47	35

DELAWARE RIVER BASIN

SCHUYLKILL RIVER AT LANDINGVILLE, PA.

Chemical analyses, in parts per million, water year October 1949 to September 1950

JAN 2 4 1951

Unpublished records, subject to revision

40240

Date of collection	Mean discharge (second feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$		Total acidity as H_2SO_4
																				Total	Non carbonate	
Oct. 11, 1949	56	69	7	4.00	1,050	9.5	1.5	0.11	5.6	95	47	48		0	506	9.0	0.0	8.6	849	430	430	42
Oct. 21	49	63	5	4.50	1,090	11	2.6	.10	5.7	100	52	52		4	545	11	.0	11	872	463	460	40
Oct. 28	58	45	5	4.25	983	12	7.3	.12	5.7	94	48	25		0	492	8.0	.1	10	766	431	431	56
Nov. 2	69	49	4	4.45	933	12	1.0	1.5	5.7	88	45	37		0	479	8.0	.0	.2	749	405	405	58
Nov. 9	60	54	3	4.30	961	11	.4	.22	5.7	90	45	42		0	482	8.0	.0	4.8	761	410	410	32
Nov. 15	85	52	1	3.80	780	11	6.2	.13	4.7	69	33	16		0	365	7.0	.0	8.0	559	308	308	73
Nov. 21	54	42	1	3.65	915	11	6.2	.21	6.1	80	45	18		0	447	7.0	.0	11	680	385	385	90
Dec. 1	65	40	5	4.30	1,050	11	5.0	.35	6.1	95	52	40		0	532	7.0	.0	11	851	451	451	94
Dec. 9	65	32	5	4.40	1,130	10	5.5	.13	7.3	109	59	41		0	614	7.0	.0	5.8	955	515	515	110
Dec. 14	201	38	3	4.30	613	9.2	3.4	.06	3.2	49	26	22		0	280	4.5	.0	6.4	462	229	229	40
Dec. 21	124	43	3	4.15	717	9.8	6.5	.09	3.8	58	32	22		0	338	6.0	.0	6.4	517	276	276	62
Dec. 28	462	43	4	4.25	408	8.4	4.2	.09	2.3	30	16	9.5		0	173	2.5	.0	5.2	296	141	141	40
Jan. 6, 1950	248	48	3	4.10	712	10	7.6	.15	3.8	54	33	20		0	338	6.0	.0	4.9	516	270	270	68
Jan. 12	405	36	3	4.15	556	9.8	5.8	.09	2.8	40	25	14		0	252	3.5	.0	6.6	390	203	203	58
Jan. 19	236	41	3	4.00	695	11	7.1	.08	3.8	54	33	15		0	321	3.5	.0	3.6	500	270	270	66
Jan. 26	186	49	2	4.00	759	12	5.2	.12	4.4	65	38	18		0	368	4.0	.0	4.2	562	318	318	66
Feb. 2	356	40	1	4.8	464	9.5	3.7	.07	2.5	40	22	11		3	209	3.5	.0	5.8	326	190	188	41
Feb. 8	262	37	3	4.10	550	10	3.3	.13	3.1	47	29	8.6		0	251	3.0	.0	4.0	394	236	236	50
Feb. 17	843	40	5	4.7	448	9.8	4.6	.23	2.1	35	21	11		2	201	3.0	.0	4.4	317	174	172	42
Feb. 23	382	39	10	3.90	605	10	7.6	.09	4.4	47	29	8.4	2.9	0	295	2.4	.1	1.0	427	236	236	54
Mar. 2	213	32	3	4.35	710	12	10	.08	3.8	57	35	15		0	351	5.0	.0	4.2	528	286	286	83
Mar. 10	248	41	2	4.20	616	10	6.8	.13	3.5	47	29	12		0	277	5.5	.0	5.6	442	236	236	84
Mar. 15	245	39	3	4.40	639	11	6.8	.11	3.7	54	31	13		0	299	3.0	.0	3.6	492	262	262	76
Mar. 22	445	40	3	4.7	438	8.8	4.2	.08	2.4	35	22	9.6		4	195	4.0	.0	3.4	306	178	175	48
Mar. 29	1,300	44	3	4.7	428	10	6.8	.07	2.6	29	20	11		2	196	2.5	.0	1.6	312	155	153	67
Apr. 5	476	48	4	4.45	664	13	9.3	.08	4.6	50	34	9.8		0	355	4.0	.0	1.6	551	263	263	98
Apr. 12	265	46	2	4.5	705	13	10	.08	4.9	56	35	13		2	360	4.0	.0	1.0	580	284	282	102
Apr. 18	199	56	1	4.6	784	14	11	.11	5.4	63	43	15		1	409	6.5	.0	.6	634	334	333	102
Apr. 25	238	48	1	4.8	661	11	7.1	.08	4.3	55	33	14		3	331	4.5	.0	.6	562	273	270	76
May 2	275	50	1	4.7	600	11	7.6	.08	3.9	49	30	11		4	297	4.0	.0	.8	479	246	242	80
May 9	208	53	2	4.7	664	12	8.8	.07	4.6	57	33	13		4	329	3.0	.0	.5	552	278	275	84
May 16	227	65	2	5.1	617	11	8.6	.12	3.3	52	30	16		16	306	6.0	.0	.6	509	253	240	78
May 22	213	62	2	4.9	597	12	8.6	.11	4.0	52	29	14		14	300	2.5	.0	1.2	482	249	238	74
May 31	303	60	4	4.5	541	11	7.3	.08	3.5	43	27	11		2	265	5.0	.0	1.3	475	218	217	65
June 5	510	60	2	4.35	516	11	8.4	.09	3.5	39	25	10		0	250	4.5	.0	1.1	450	200	200	82
June 12	248	63	2	4.25	697	13	14	.14	4.9	57	36	13		0	361	5.0	.0	.9	644	290	290	93
June 19	199	59	5	4.6	725	13	10	.05	5.0	60	37	14		4	377	6.0	.0	.6	563	302	299	150
June 27	119	79	5	4.6	830	14	11	.07	5.7	74	43	16		2	433	7.5	.0	1.0	653	361	360	176
July 5	266	---	2	4.8	800	13	8.1	.16	4.6	70	42	16		6	404	5.5	.0	.6	637	347	342	114
July 10	151	65	3	4.8	768	13	8.7	.09	4.6	68	40	16		10	387	5.5	.0	1.0	615	334	326	80
July 17	250	72	5	4.6	627	13	10	.12	3.9	48	31	11		6	309	6.0	.0	1.4	484	247	242	100
July 24	190	64	3	4.5	757	10	11	.14	4.9	59	41	19		0	382	7.0	.0	2.6	579	316	316	184
July 31	136	74	2	4.8	854	11	10	.17	5.6	70	42	29		0	447	7.0	.0	.8	678	347	341	212

SCHUYLKILL RIVER AT LANDINGVILLE, PA.

Chemical analyses, in parts per million, water year October 1949 to September 1950

40240

Date of collection	Mean discharge (second feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$		Total acidity as H_2SO_4
																				Total	Noncarbonate	
Aug. 1, 1950	128	69	2	4.30	799	13	17	.19	4.5	54	35	12		0	378	5.5	.0	3.0	630	279	279	131
Aug. 21	147	69	3	4.00	780	13	6.8	.09	4.7	66	37	18		0	379	7.0	.0	4.7	587	317	317	214
Aug. 28	80	68	1	4.20	934	14	4.6	.23	6.3	90	53	20		0	491	5.0	.0	2.9	740	442	442	176
Aug. 29	74	77	2	4.10	1,030	16	22	.37	6.0	68	45	16		0	512	6.5	.0	5.9	911	355	355	183
Sept. 5	65	60	2	4.8	914	13	3.0	.18	6.0	90	50	22		6	482	6.0	.0	1.7	733	430	425	222
Sept. 11	173	66	2	4.6	619	11	3.1	.14	3.7	54	29	14		5	295	5.0	.0	5.6	444	254	250	140
Sept. 18	80	65	2	4.8	956	14	3.1	.12	6.4	89	51	28		6	500	9.0	.0	1.5	766	432	427	178
Sept. 25	72	54	4	4.9	924	13	5.2	.15	6.2	86	52	23		8	491	6.5	.0	1.1	731	428	422	152
Average	235	53	3	4.40	738	11	7.1	.15	4.5	62	36	19		2	365	5.5	.0	3.6	579	305	303	96

DELAWARE RIVER BASIN

SCHUYLKILL RIVER AT AUBURN, PA.

Chemical analyses, in parts per million, water year October 1949 to September 1950

Date of collection	Mean discharge (second feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solide	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Non carbonate	Total acidity as H_2SO_4
Oct. 7, 1949	69	62	3	4.30	943	11	5.2	0.11	5.5	86	42	30		0	453	8.0	0.0	7.4	720	387	387	54
Oct. 11	63	74	3	4.25	1,010	10	3.6	.11	4.6	88	44	45		0	485	9.0	.0	8.0	774	400	400	46
Oct. 21	62	56	4	4.00	1,010	11	1.3	.02	4.8	92	45	48		0	497	8.0	.0	9.6	773	415	415	38
Oct. 28	63	46	4	3.95	897	12	2.3	.04	5.4	89	42	27		0	437	7.0	.0	9.6	692	395	395	68
Nov. 2	74	50	1	3.95	799	9.9	3.6	.13	4.6	72	41	18		0	383	8.0	.0	8.8	584	348	348	62
Nov. 9	65	52	1	4.05	887	8.8	2.0	.13	4.3	80	45	28		0	435	9.5	.0	9.4	658	385	385	51
Nov. 18	76	42	5	4.15	796	10	3.1	.09	5.2	75	38	18		0	388	7.0	.0	4.5	596	343	343	42
Dec. 1	81	40	5	4.10	902	10	3.1	.11	5.1	78	44	26		0	436	7.0	.0	8.8	690	376	376	54
Dec. 9	79	32	4	4.25	1,030	12	3.9	.11	5.7	96	49	30		0	518	6.5	.0	13	845	441	441	62
Dec. 16	182	32	3	4.05	669	9.0	5.2	.08	3.6	52	31	15		0	301	5.0	.0	9.6	454	257	257	48
Dec. 20	165	45	3	4.25	611	8.6	2.6	.06	3.3	48	27	25		0	281	5.5	.0	6.6	454	231	231	50
Dec. 28	601	43	3	4.40	337	7.9	2.9	.06	1.7	21	15	7.0		0	137	3.5	.0	5.8	212	114	114	26
Jan. 9, 1950	366	38	4	4.15	573	9.8	5.2	.07	2.6	42	26	15		0	260	2.5	.0	5.0	404	212	212	52
Jan. 16	396	42	4	4.20	557	10	4.7	.05	2.9	42	26	14		0	255	2.0	.0	3.6	400	212	212	46
Jan. 25	251	42	3	4.20	688	11	4.9	.16	3.8	58	36	18		0	330	3.0	.0	4.5	504	293	293	54
Jan. 30	273	43	4	4.30	602	10	3.9	.08	3.2	48	30	18		0	280	3.0	.0	5.5	432	243	243	38
Feb. 6	417	37	3	4.15	392	8.8	2.1	.05	1.8	30	19	8.9		0	171	2.0	.0	5.8	269	153	153	40
Feb. 15	1,160	36	2	4.40	256	7.8	1.8	.03	1.0	20	10	4.2		0	95	2.0	.0	6.6	169	91	91	25
Feb. 23	442	37	2	4.25	515	10	5.0	.06	2.7	42	26	10		0	237	3.0	.0	4.4	366	212	212	56
Mar. 1	258	38	2	4.40	607	11	6.6	.07	3.4	51	30	12		0	284	4.0	.0	5.4	443	251	251	56
Mar. 6	187	42	2	4.40	674	12	8.9	.08	3.7	55	35	12		0	326	4.5	.0	4.8	506	279	279	75
Mar. 13	325	37	2	4.35	517	9.4	5.5	.10	3.0	40	24	12		0	239	2.5	.0	4.2	388	198	198	76
Mar. 20	202	37	2	4.6	631	11	7.6	.07	3.7	52	32	12		1	308	2.0	.0	3.2	476	261	261	65
Mar. 27	1,430	43	3	4.40	348	8.0	3.9	.08	1.8	25	15	8.5		0	154	2.0	.0	3.4	252	124	124	48
Apr. 3	580	48	2	4.25	571	12	9.7	.09	3.8	40	28	12		0	285	3.0	.0	1.9	466	215	215	94
Apr. 10	328	42	2	4.5	666	12	12	.13	4.5	50	34	8.6		0	333	4.0	.0	3.0	558	265	265	96
Apr. 17	240	41	2	4.6	718	13	12	.10	4.9	58	38	12		1	375	3.5	.0	.8	618	301	300	96
Apr. 24	242	48	2	4.7	740	12	13	.12	5.0	62	38	13		1	390	5.0	.0	.8	665	311	310	92
May 1	363	54	3	4.5	518	9.2	6.1	.08	3.1	38	23	7.8		2	233	3.5	.0	1.1	383	189	188	60
May 9	248	53	2	4.9	612	11	8.2	.05	3.8	50	29	16		16	308	4.5	.0	.4	498	244	231	70
May 15	229	56	2	4.9	644	12	10	.11	4.1	56	32	15		16	334	3.5	.0	.7	534	271	258	78
May 22	251	66	3	4.5	544	10	6.1	.07	3.5	45	27	11		2	266	4.0	.0	1.2	463	223	223	62
May 31	363	61	3	4.45	479	10	4.6	.06	2.9	38	23	8.6		0	228	4.0	.0	1.3	396	189	189	54
June 6	481	60	2	4.35	490	--	--	--	--	--	--	--		--	227	5.0	.0	2.3	--	182	182	118
June 13	259	--	4	4.35	678	12	11	.11	4.3	52	33	11		0	332	5.0	.0	1.0	502	265	265	180
June 22	184	68	5	4.6	704	12	12	.11	4.5	56	35	14		11	354	6.5	.0	.5	530	284	275	166
June 26	143	86	2	4.5	786	13	13	.06	4.8	67	40	16		3	401	3.0	.0	1.6	633	332	329	96
July 5	253	78	2	4.7	801	13	12	.07	4.8	70	41	19		9	413	3.5	.0	1.2	632	343	336	84
July 10	177	67	2	4.8	712	12	7.4	.06	4.3	61	35	13		10	361	3.0	.0	1.8	566	296	288	70
July 17	300	70	3	4.7	580	12	5.7	.15	3.5	45	29	12		5	281	6.5	.0	1.7	447	232	227	102
July 24	205	64	2	4.5	761	9.8	11	.11	4.8	63	32	21		0	382	5.0	.0	2.5	578	289	289	180
July 31	153	73	2	4.5	815	10	11	.15	4.9	69	37	22		0	416	6.0	.0	2.3	628	324	324	200

Chemical analyses, in parts per million, water year October 1949 to September 1950

Date of collection	Mean discharge (second feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$		Total acidity as H_2SO_4
																				Total	Noncarbonate	
Aug. 7, 1950	127	68	5	4.7	839	14	11	.08	5.1	74	43	20		6	431	5.0	.0	2.6	691	361	357	80
Aug. 14	92	64	3	4.8	968	12	14	.08	6.4	91	53	19		4	509	6.0	.0	1.7	834	445	442	88
Aug. 21	174	63	3	4.10	673	12	6.3	.09	4.3	53	31	14		0	323	4.0	.0	5.6	492	260	260	178
Aug. 28	94	70	2	3.75	910	13	5.7	.18	5.6	79	49	20		0	447	6.0	.0	8.3	668	399	399	148
Sept. 5	79	71	3	3.85	903	13	6.8	.15	5.3	80	47	20		0	452	7.0	.0	7.5	697	393	393	178
Sept. 11	128	68	3	4.5	426	9.4	1.3	.07	2.2	36	19	12		3	183	6.0	.0	6.0	295	168	165	110
Sept. 19	107	62	2	4.6	652	11	2.1	.07	3.7	59	31	18		3	310	6.0	.0	1.4	486	275	272	100
Sept. 25	88	56	2	4.7	800	11	2.8	.13	5.0	76	41	20		5	407	5.5	.0	1.2	630	358	354	172
Average	270	53	3	4.35	685	11	6.4	.09	4.0	58	33	17		2	333	5.0	.0	5.0	530	281	279	84

DELAWARE RIVER BASIN

SCHUYLKILL RIVER AT BERNE, PA.

Chemical analyses, in parts per million, water year October 1949 to September 1950

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$		Total acidity as H_2SO_4
																				Total	Noncarbonate	
Oct. 1-10, 1949	175	—	5	3.85	780	12	7.8	0.13	4.3	63	37	17	—	0	377	4.0	0.0	5.6	569	309	309	96
Oct. 11-20	142	—	5	3.75	881	13	8.3	.19	5.1	74	42	18	—	0	429	5.0	.0	5.2	672	357	357	94
Oct. 21-31	194	—	5	3.80	825	11	7.3	.16	4.9	72	42	18	—	0	406	7.0	.0	6.0	614	352	352	106
Nov. 1-10	224	—	3	3.80	737	10	7.8	.16	4.2	60	37	11	—	0	356	7.0	.0	6.2	538	302	302	89
Nov. 11-20	247	—	5	3.95	692	11	8.4	.11	4.1	56	30	12	—	0	326	6.0	.0	6.8	496	263	263	78
Nov. 21-30	203	—	5	3.80	763	12	10	.11	4.9	59	32	14	—	0	352	5.0	.0	7.2	560	279	279	86
Dec. 1-10	163	—	3	3.80	816	11	7.3	.13	4.6	65	34	16	—	0	374	6.0	.0	10	628	302	302	78
Dec. 11-20	512	—	3	4.00	543	8.8	3.9	.14	3.0	41	20	15	—	0	234	4.5	.0	6.8	392	185	185	52
Dec. 21-31	890	—	2	4.25	418	8.2	4.7	.13	1.9	30	19	7.6	—	0	188	4.5	.0	5.2	284	153	153	42
Jan. 1-10, 1950	793	—	2	4.25	420	8.5	5.0	.09	2.0	30	17	7.1	—	0	184	5.5	.0	4.2	277	145	145	46
Jan. 11-20	1,000	—	3	4.25	383	8.8	3.4	.07	1.9	28	16	10	—	0	161	3.5	.0	4.7	262	136	136	42
Jan. 21-31	526	—	3	4.20	504	9.5	5.0	.08	2.7	37	23	10	—	0	230	3.0	.0	4.4	364	187	187	50
Feb. 1-10	1,060	—	4	4.30	325	8.5	2.6	.03	1.6	25	13	6.9	—	0	136	3.5	.0	4.2	211	116	116	32
Feb. 11-20	1,910	—	4	4.40	284	8.2	2.2	.05	1.4	21	12	6.3	—	0	115	2.5	.0	4.0	191	102	102	30
Feb. 21-28	930	—	4	4.40	421	9.8	3.4	.04	2.3	34	20	9.3	—	0	194	4.0	.0	2.1	304	167	167	44
Mar. 1-10	601	—	4	4.45	484	9.8	3.9	.05	2.8	40	23	10	—	0	223	3.5	.0	2.1	351	194	194	50
Mar. 11-20	700	—	4	4.5	418	9.5	3.7	.06	2.3	33	20	8.5	—	4	190	3.5	.0	2.4	302	161	161	42
Mar. 21-31	2,800	—	4	4.6	267	7.5	2.1	.03	1.3	19	11	6.4	—	2	110	3.0	.0	2.6	184	93	91	26
Apr. 1-10	1,250	—	2	5.0	451	10	5.5	.05	2.7	33	21	7.8	—	2	210	5.0	.0	1.6	344	169	167	68
Apr. 11-20	724	—	2	4.9	531	11	7.6	.05	3.2	40	27	7.1	—	1	258	6.0	.0	1.7	417	211	210	78
Apr. 21-30	601	—	1	5.0	498	10	5.7	.05	3.2	38	25	8.7	—	2	235	6.0	.0	1.6	403	198	196	82
May 1-10	791	—	4	4.15	415	8.7	6.7	.10	2.2	30	18	6.0	—	0	185	3.5	.0	3.7	282	149	149	52
May 11-20	638	—	5	4.45	485	9.3	7.9	.06	2.7	38	23	7.5	—	0	226	4.5	.0	3.3	342	185	185	86
May 21-31	841	—	5	4.5	367	8.4	4.8	.08	1.9	28	17	5.7	—	0	160	3.5	.0	3.2	249	140	140	66
June 1-10	1,030	—	3	4.20	365	9.0	5.7	.03	1.9	24	15	7.3	—	0	157	2.0	.0	3.2	251	122	122	54
June 11-20	561	—	3	4.30	505	10	8.4	.05	3.0	36	22	12	—	0	232	2.0	.0	3.2	364	180	180	80
June 21-30	342	—	2	4.35	781	13	8.6	.16	4.2	58	35	13	—	0	367	4.0	.0	5.0	593	289	289	110
July 1-10	491	—	2	4.40	771	12	7.9	.11	4.3	61	35	14	—	0	360	4.0	.0	4.9	594	296	296	94
July 11-20	840	—	2	4.6	507	11	5.0	.08	2.7	39	22	9.4	—	4	223	3.0	.0	5.0	381	138	184	56
July 21-31	433	—	4	4.6	637	12	8.1	.11	3.8	54	29	9.2	—	8	314	3.5	.0	1.9	492	254	247	96
Aug. 1-10	274	—	2	4.5	568	12	11	.13	4.2	55	34	13	—	0	339	5.0	.0	4.7	568	277	277	92
Aug. 11-20	270	—	2	3.75	811	13	12	.27	4.6	62	36	15	—	0	380	6.0	.0	7.3	586	303	303	210
Aug. 21-31	236	—	1	4.00	732	13	11	.18	4.2	56	33	13	—	0	340	6.0	.0	4.7	526	275	275	200
Sept. 1-10	213	—	2	4.00	809	14	12	.11	4.8	65	37	15	—	0	394	6.5	.0	3.8	602	314	314	218
Sept. 11-20	404	—	2	4.25	589	12	7.6	.09	3.5	48	26	12	—	0	276	6.5	.0	3.5	434	227	227	158
Sept. 21-30	211	—	3	4.25	717	13	12	.18	4.4	58	33	14	—	0	353	6.5	.0	2.5	550	280	280	198
Average	645	--	3	4.25	569	11	6.8	.10	3.2	45	26	11	--	1	266	4.5	.0	4.3	422	218	218	86

SCHUYLKILL RIVER AT BERNE, PENNSYLVANIA

Chemical analyses, in parts per million, October 1950 to September 1951

Original Record

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Noncarbonate	Total acidity as H_2SO_4
Oct. 1-10, 1950	259		2	3.65	831	13	11	0.19	4.5	66	38	18	---	0	391	5.0	0.0	9.3	587	321	321	182
Oct. 11-20	436		3	3.70	488	10	4.4	.08	2.4	36	20	11	---	0	206	4.0	.0	6.8	318	172	172	74
Oct. 21-31	267		3	3.50	592	11	7.6	.13	2.9	42	24	13	---	0	253	5.0	.0	8.0	388	204	204	104
Nov. 1-10	568		2	3.70	499	10	4.7	.15	2.0	34	20	12	---	0	199	3.5	.0	8.3	306	167	167	80
Nov. 11-20	417		4	3.80	496	10	4.9	.11	2.6	34	21	12	---	0	207	5.0	.0	7.0	320	171	171	84
Nov. 21-30	3,440		4	4.15	397	9.3	5.0	.09	2.0	26	17	11	---	0	165	3.5	.0	5.4	259	135	135	64
Dec. 1-10	4,840		3	4.35	370	9.5	4.7	.06	2.0	23	16	9.9	---	0	162	2.5	.0	3.5	248	123	123	90
Dec. 11-20	1,420		2	4.30	526	11	10	.09	2.8	35	25	11	---	0	251	3.0	.0	2.5	386	190	190	144
Dec. 21-31	574		2	4.30	667	13	10	.10	3.9	48	34	12	---	0	334	6.0	.0	2.0	506	260	260	186
Jan. 1-10,1951	836		3	4.40	508	10	8.1	.10	2.8	35	25	12	---	0	238	4.0	.0	2.9	366	190	190	126
Jan. 11-20	1,040		2	4.00	413	9.6	6.3	.12	2.1	28	18	6.2	---	0	182	4.5	.0	4.7	269	144	144	104
Jan. 21-31	1,810		2	4.00	381	7.9	6.6	.08	2.0	25	17	6.9	---	0	165	5.0	.0	4.1	245	132	132	88
Feb. 1-10	2,080		3	4.05	398	8.9	6.8	.11	2.1	26	18	7.4	---	0	174	4.5	.0	3.1	263	139	139	98
Feb. 11-20	1,240		2	4.10	450	9.0	8.1	.09	2.5	30	21	7.8	---	0	202	4.0	.0	2.2	306	161	161	116
Feb. 21-28	1,610		2	4.20	389	8.7	6.6	.07	2.1	26	18	7.5	---	0	173	5.0	.0	2.3	260	139	139	112
Mar. 1-10	1,100		2	4.30	453	9.6	7.3	.08	2.5	30	21	9.8	---	0	205	4.5	.0	2.7	312	161	161	118
Mar. 11-20	993		3	4.15	479	9.4	6.9	.13	2.7	32	22	8.9	---	0	216	4.5	.0	2.4	320	170	170	126
Mar. 21-31	1,340		2	4.15	416	7.7	5.5	.11	2.2	28	18	8.0	---	0	176	5.0	.0	2.7	264	144	144	112
Apr. 1-10	1,240		2	4.15	415	8.3	6.5	.10	2.1	27	19	5.4	---	0	196	3.5	.0	2.5	275	145	145	108
Apr. 11-20	1,440		2	4.10	397	10	4.2	.06	1.9	25	18	6.6	---	0	172	4.0	.0	3.4	263	136	136	100
Apr. 21-30	942		3	4.10	446	10	5.2	.09	2.4	28	21	7.4	---	0	200	5.0	.0	2.1	308	156	156	118
May 1-10	655		2	4.10	522	11	5.2	.06	3.2	34	25	8.7	---	0	238	4.0	.0	3.0	378	188	188	128
May 11-20	429		2	4.10	660	12	7.1	.07	4.2	46	33	12	---	0	322	6.0	.0	2.1	496	250	250	184
May 21-31	331		2	4.15	741	12	10	.10	4.5	52	37	15	---	0	365	7.0	.0	2.2	559	282	282	177
June 1-10	343		3	4.00	731	12	7.6	.10	4.4	54	36	15	---	0	359	8.0	.0	2.2	559	283	283	180
June 11-20	421		2	4.10	637	11	6.0	.09	3.7	45	31	13	---	0	302	5.0	.0	1.3	474	240	240	144
June 21-30	405		3	4.00	696	11	6.0	.15	3.5	42	29	12	---	0	286	7.0	.0	1.9	443	224	224	156
July 1-10	439		2	4.20	574	11	6.6	.08	3.2	43	28	12	---	0	286	5.5	.0	2.1	452	222	222	118
July 11-20	327		2	3.95	694	12	12	.18	3.9	51	35	12	---	0	356	6.5	.0	3.7	514	271	271	168
July 21-31	649		4	4.05	696	13	11	.17	4.2	51	36	13	---	0	355	5.0	.0	3.6	520	275	275	169
Aug. 1-10	489		4	4.35	697	15	10	.19	4.0	50	33	12	---	0	335	4.5	.0	1.6	522	260	260	138
Aug. 11-20	657		2	3.90	611	10	12	.05	3.3	42	29	8.5	2.1	0	294	4.0	.0	2.9	410	234	234	134
Aug. 21-31	316		2	3.85	721	13	12	.06	4.6	49	36	14	2.2	0	354	4.0	.0	2.3	538	270	270	162
Sept. 1-10	281		4	3.95	803	13	15	.05	5.1	58	41	14	2.3	0	411	5.5	.0	2.3	610	313	313	194
Sept. 11-20	281		3	3.95	821	14	15	.08	5.3	60	41	18	2.5	0	418	6.0	.0	2.5	632	319	319	167
Sept. 21-30	235		2	3.80	910	15	17	.13	5.8	68	47	19	2.6	0	479	6.5	.0	4.0	712	363	363	220
Average	949		3	4.05	568	11	8.1	.10	3.2	40	27	11	---	0	267	4.9	.0	3.5	406	210	210	134

SCHUYLKILL RIVER AT POTTSTOWN, PENNSYLVANIA

Chemical analyses, in parts per million, water year October 1949 to September 1950

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Non-carbonate
Oct. 1-10, 1949---	490	65	8	7.0	482	5.8	.05	48	21	13		53	158	14	.2	7.2	311	206	163
Oct. 11-20,-------	399	64	7	7.1	511	5.6	.05	53	23	14		58	177	14	.2	7.2	331	227	179
Oct. 21-31,-------	453	56	11	7.0	511	5.7	.05	56	22	10		58	172	14	.2	7.2	333	230	183
Nov. 1-10,-------	571	52	7	7.7	436	3.5	.04	44	18	9.1		56	138	5.5	.2	7.0	290	184	138
Nov. 11-20,------	587	50	8	7.2	452	8.8	.04	45	20	7.8		49	143	12	.1	6.7	294	195	154
Nov. 21-30,-------	499	41	8	7.2	454	8.6	.06	46	20	8.0		46	147	12	.1	8.2	293	197	159
Dec. 1-10,--------	500	38	8	7.2	473	9.0	.08	47	20	13		47	156	13	.1	9.3	306	200	161
Dec. 11-20,------	1,220	38	6	6.7	355	9.1	.06	36	14	9.7		37	114	9.1	.1	8.0	231	147	117
Dec. 21-31,------	2,144	42	6	6.6	295	8.7	.03	29	12	6.5		34	88	6.8	.1	8.1	187	122	94
Jan. 1-10, 1950---	1,759	44	7	6.6	287	8.8	.06	28	12	3.8		26	88	5.2	.1	8.7	185	119	98
Jan. 11-20,------	2,395	38	5	6.8	261	7.8	.04	26	10	7.0		22	85	5.2	.1	8.8	180	105	87
Jan. 21-31,------	1,291	42	5	6.8	341	8.5	.06	33	11	14		30	113	7.0	.1	8.0	236	128	110
Feb. 1-10,--------	3,098	38	5	6.9	247	7.5	.06	25	9.4	6.0		28	73	5.8	.1	8.4	178	101	78
Feb. 11-20,------	5,431	40	7	6.8	206	6.8	.04	21	7.8	5.0		27	57	4.4	.1	9.2	131	84	62
Feb. 21-28,------	2,129	34	6	6.9	279	7.5	.04	28	12	5.3		29	87	6.0	.1	9.6	180	119	95
Mar. 1-10,-------	1,389	--	7	7.1	328	7.9	.09	34	14	9.2		33	113	6.6	.2	9.8	215	142	64
Mar. 11-20,------	1,678	40	8	6.9	292	7.8	.05	29	11	8.3		34	87	7.2	.2	8.0	189	118	90
Mar. 21-31,------	6,444	--	8	6.6	208	7.7	.04	21	7.9	5.3		26	61	4.0	.2	6.7	134	85	64
Apr. 1-10,--------	2,842	49	7	6.7	304	7.8	.03	29	13	6.9		24	104	4.9	.2	6.8	200	126	106
Apr. 11-20,------	1,595	49	4	6.8	344	7.2	.02	34	15	7.9		29	119	6.0	.2	8.8	236	147	123
Apr. 21-30,------	1,567	55	3	6.9	343	6.6	.02	33	15	8.9		32	116	6.2	.2	8.8	230	144	118
May 1-10,--------	1,847	58	3	7.0	292	6.6	.04	29	12	7.5		32	94	5.4	.2	7.2	208	122	96
May 11-20,-------	1,722	61	3	6.9	313	6.1	.04	31	13	9.5		36	103	5.9	.2	7.2	224	131	101
May 21-31,-------	2,618	63	4	6.9	254	6.5	.06	26	9.3	7.2		39	71	4.8	.2	7.0	177	103	71
June 1-10,-------	2,675	69	4	6.5	261	6.9	.05	27	11	3.4		37	74	5.9	.1	5.2	167	113	82
June 11-20,------	1,511	69	4	6.6	336	9.0	.05	36	15	3.8		36	111	6.6	.1	6.4	224	152	122
June 21-30,------	982	74	4	6.6	415	8.8	.05	43	19	6.0		38	144	8.2	.1	7.0	283	185	154
July 1-10,-------	1,035	76	3	6.5	424	8.5	.06	46	20	4.4		30	160	6.6	.2	6.9	296	197	172
July 11-20,------	1,771	75	5	6.9	385	8.9	.02	39	16	6.7		25	136	7.5	.1	6.0	262	163	143
July 21-31,------	934	76	8	6.9	439	8.0	.07	44	18	12		32	158	9.6	.1	5.9	307	184	158
Aug. 1-10,--------	688	77	8	6.7	468	9.3	.03	47	19	13		36	165	12	.0	7.6	326	195	166
Aug. 11-20,------	543	79	8	6.8	502	8.1	.05	49	21	17		44	175	15	.1	7.8	349	209	173
Aug. 21-31,------	624	80	8	6.6	468	10	.06	47	19	15		34	170	12	.0	7.6	341	195	168
Sept. 1-10,------	532	74	8	6.9	456	9.9	.06	41	19	18		41	152	14	.1	9.1	319	180	147
Sept. 11-20,-----	1,574	69	1	6.9	315	8.2	.06	32	12	8.3		40	94	7.8	.2	6.3	203	129	96
Sept. 21-30,-----	658	66	3	6.8	386	8.0	.06	39	16	9.8		41	125	10	.2	7.5	255	163	130
Average--------	1,625	57	6	6.9	365	7.8	.05	37	15	8.9		37	120	8.3	.1	7.6	245	160	123

Chemical analyses, in parts per million, water year October 1950 to September 1951

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$	
																		Total	Noncarbonate
Oct. 1-10, 1950	608	63	4	6.8	400	7.4	.09	40	17	11		41	132	11	.1	7.9	263	170	136
Oct. 11-20,	1039	60	2	6.7	367	7.4	.10	37	15	8.9		32	125	8.6	.1	5.9	242	154	128
Oct. 21-31,	901	59	4	6.8	372	7.4	.05	35	16	7.8		37	115	10	.1	7.2	238	153	123
Nov. 4-10,	1803	52	4	6.6	264	6.5	.05	25	12	3.9		17	90	4.8	.0	7.2	172	112	97
Nov. 11-20,	988	47	4	6.7	338	7.2	.07	32	14	6.4		31	104	7.9	.1	7.8	211	137	112
Nov. 21-30,	9230	43	4	6.5	285	8.2	.05	27	13	2.9		17	96	5.0	.1	7.2	185	121	107
Dec. 1-10,	8267	42	4	6.4	270	6.2	.06	25	12	4.8		8	99	4.8	.0	7.2	183	112	105
Dec. 11-20,	3453	38	3	6.5	336	6.5	.06	32	16	5.6		17	123	5.8	.1	7.8	230	146	132
Dec. 21-31,	1500	35	5	6.5	397	7.0	.04	39	19	7.7		22	149	8.0	.1	9.1	275	175	157
Jan. 1-10, 1951	1839	37	7	6.8	333	6.8	.05	32	15	5.4		23	112	7.8	.0	8.4	221	142	123
Jan. 11-20,	3079	37	7	6.9	267	6.9	.07	26	12	3.0		25	82	6.0	.0	7.9	175	114	94
Jan. 21-31,	3636	36	5	6.9	260	6.2	.40	25	11	4.4		20	84	5.5	.0	7.0	169	108	91
Feb. 1-10,	5730	35	3	6.7	243	3.4	.06	23	11	3.7		23	76	5.0	.1	6.8	156	103	84
Feb. 11-20,	3818	39	3	6.7	271	3.2	.06	26	12	6.8		24	93	4.8	.1	6.9	172	114	95
Feb. 21-28,	4719	43	4	6.9	253	2.8	.06	24	11	5.7		28	79	4.8	.1	6.7	159	105	82
Mar. 1-10,	3174	43	3	6.9	289	3.8	.08	28	13	5.1		30	93	5.0	.1	7.0	185	123	99
Mar. 11-20,	2688	44	4	6.9	303	4.0	.06	29	14	5.6		32	99	5.2	.1	6.6	197	130	104
Mar. 21-31,	3391	49	4	6.9	268	3.9	.07	26	12	4.5		28	86	4.5	.1	6.2	167	114	91
Apr. 1-10,	2885	53	4	6.9	280	4.3	.07	26	13	5.2		22	97	4.2	.1	5.5	178	118	100
Apr. 11-20,	3819	52	3	7.0	248	7.3	.10	23	11	4.8		27	77	4.1	.2	5.6	163	103	81
Apr. 21-30,	2373	58	3	7.0	208	7.3	.14	28	14	6.1		28	101	5.0	.2	6.2	208	127	104
May 1-10,	1658	65	2	7.1	324	7.8	.12	33	15	6.5		34	112	5.8	.2	6.1	222	144	116
May 11-20,	1142	67	4	7.2	383	8.2	.33	37	18	7.1		42	127	7.0	.2	5.8	274	166	132
May 21-31,	965	70	6	6.7	410	11	.18	39	20	8.6		56	131	7.2	.1	7.0	278	180	134
June 1-10,	971	74	5	6.8	419	11	.10	40	20	10		50	141	7.8	.1	7.0	284	182	141
June 11-20,	1159	74	5	6.8	395	10	.07	38	19	6.9		45	131	6.8	.1	6.0	268	173	136
June 21-30,	1243	80	4	6.8	352	10	.10	34	18	3.6		44	113	6.5	.1	4.5	235	159	123
July 1-10,	1234	79	3	6.8	367	10	.11	34	17	8.4		43	121	5.2	.1	5.2	246	155	120
July 11-20,	1178	83	3	6.6	366	10	.09	33	17	8.3		40	120	6.2	.1	4.5	248	152	119
July 21,23-26,28-31	1646	83	4	6.8	404	10	.06	38	19	9.9		32	147	7.5	.1	5.5	280	173	147
Aug. 1-10,	979	84	5	6.4	408	10	.09	35	20	9.8		14	160	6.5	.1	4.2	282	170	158
Aug. 11-17,19-20,	1351	87	4	6.5	393	10	.05	35	20	8.3		14	156	6.8	.1	5.0	273	170	158
Aug. 21-22,27-29,	805	83	4	6.5	435	10	.08	40	21	9.7		18	170	8.8	.1	3.5	302	186	171
Sept. 3,5-10,	984	82	5	6.7	449	10	.04	44	20	13		35	170	8.0	.1	5.0	323	192	163
Sept. 11-15,17-18,20	713	81	4	6.7	520	10	.05	49	25	15		28	205	11	.1	6.8	382	225	202
Sept. 21-28,	539	78	4	6.8	549	11	.02	52	26	17		30	216	13	.1	7.5	386	237	212
Average	2362	59	4	6.8	345	7.6	.09	33	16	7.3		29	120	6.7	.1	6.4	234	148	124

SCHUYLKILL RIVER AT BELMONT FILTER PLANT, PHILADELPHIA, PENNSYLVANIA

Chemical analyses, in parts per million, water year October 1949 to September 1950

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Non-carbonate
Oct. 1-10, 1949	388	66	7	6.9	492	3.5	.10	46	22	19		85	135	21	.2	7.0	341	205	136
Oct. 11-20,	261	68	7	6.8	478	3.3	.08	44	22	14		88	115	23	.2	7.7	326	200	128
Oct. 21-31,	366	62	8	7.9	497	3.9	.04	46	20	14		89	128	10	.2	6.8	318	197	124
Nov. 1-10,	476	54	7	7.6	447	4.2	.04	43	18	10		74	121	8.0	.1	6.6	289	181	121
Nov. 11-20,	470	54	8	7.8	436	4.3	.04	42	18	9.1		76	113	8.5	.2	7.6	282	179	116
Nov. 21-30,	351	44	6	6.9	435	10	.04	44	18	12		69	120	16	.1	8.3	278	184	127
Dec. 1-10,	348	39	8	6.7	447	10	.04	44	18	16		71	121	18	.2	10	286	184	126
Dec. 11-20,	1,496	39	7	6.8	378	10	.06	38	15	11		53	106	14	.1	8.0	240	156	113
Dec. 21-31,	3,147	40	11	6.8	291	10	.06	30	11	8.1		48	75	9.2	.1	8.8	182	120	81
Jan. 1-10, 1950	2,057	42	8	6.9	272	9.7	.05	26	10	7.8		38	70	7.8	.2	9.1	174	106	75
Jan. 11-20,	2,870	41	6	6.9	261	9.2	.04	25	10	5.6		32	69	7.0	.1	9.4	166	104	77
Jan. 21-31,	1,369	40	6	6.9	321	9.9	.04	31	13	5.9		40	87	9.2	.2	8.3	203	131	98
Feb. 1-10,	4,735	39	8	6.8	245	8.2	.03	23	9.0	9.8		36	65	7.6	.2	8.9	154	94	65
Feb. 11-20,	8,587	38	8	6.9	201	7.6	.03	20	7.3	5.8		32	49	5.9	.1	8.5	124	80	54
Feb. 21-28,	3,007	36	7	7.0	259	8.3	.03	25	10	7.6		37	69	7.5	.1	8.8	162	104	73
Mar. 1-10,	1,997	35	10	6.9	312	9.8	.05	31	12	8.0		47	82	8.9	.1	9.2	200	127	89
Mar. 11-20,	2,845	39	10	7.0	272	9.6	.05	26	10	6.4		38	68	7.9	.2	7.6	172	106	75
Mar. 21-31,	10,280	42	12	6.9	206	8.2	.05	20	7.6	4.3		33	48	5.2	.2	7.0	132	81	54
Apr. 1-10,	3,928	48	8	7.0	265	8.9	.05	26	10	5.8		30	76	6.4	.2	6.4	170	106	81
Apr. 11-20,	1,943	50	3	7.0	315	7.8	.02	30	13	10		42	93	7.9	.1	9.3	216	128	94
Apr. 21-30,	1,874	53	3	7.0	331	7.6	.04	32	14	9.1		47	97	8.8	.1	6.3	231	137	99
May 1-10,	2,315	53	3	7.1	290	6.2	.04	28	12	8.0		43	81	7.6	.2	7.2	200	119	84
May 11-20,	2,102	64	3	7.0	309	7.1	.04	30	13	9.1		49	86	8.5	.2	7.2	214	128	88
May 21-31,	3,626	63	3	7.0	244	9.0	.04	25	8.8	6.7		44	61	6.2	.1	5.6	164	99	63
June 1-10,	3,678	61	4	7.1	244	9.1	.04	26	9.3	4.9		45	61	5.9	.1	6.0	171	103	66
June 11-20,	1,692	73	2	7.1	306	9.4	.04	30	12	9.8		48	85	8.0	.1	7.5	210	124	85
June 21-30,	967	66	4	6.7	351	10	.04	36	15	5.0		59	91	10	.1	6.2	228	152	103
July 1-10,	1,040	79	4	6.8	439	8.8	.05	46	20	7.4		57	138	12	.1	6.9	300	197	150
July 11-20,	2,145	76	5	6.7	329	8.7	.05	34	14	4.0		43	96	8.0	.1	5.5	222	142	107
July 21-31,	890	80	4	6.7	405	7.7	.04	42	17	7.8		54	121	12	.1	5.2	270	175	130
Aug. 1-10,	984	79	4	7.1	406	9.1	.04	40	17	12		56	118	14	.2	5.4	259	170	121
Aug. 11-20,	408	70	5	7.1	466	12	.01	44	19	16		66	130	16	.2	6.5	299	188	131
Aug. 21-31,	561	78	4	7.0	503	10	.12	48	22	13		66	146	19	.2	6.4	331	210	156
Sept. 1-10,	484	78	4	7.0	437	8.9	.02	41	18	12		69	111	16	.2	6.7	279	176	120
Sept. 11-20,	1,914	72	6	7.0	323	13	.03	31	13	7.5		52	82	10	.2	5.7	203	131	88
Sept. 21-30,	526	65	8	7.2	401	16	.02	38	16	13		78	94	15	.2	6.2	256	161	97
Average	2,411	56	6	7.0	358	8.6	.04	34	14	9.3		54	95	11	.2	7.3	233	144	100

Chemical analyses, in parts per million, water year October 1950 to September 1951

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$	
																		Total	Non-carbonates
Oct. 1-10, 1950---	370	68	8	7.2	457	13	.02	43	18	16		80	113	19	.2	7.1	292	181	116
Oct. 11-20,-------	994	63	5	7.0	408	8.4	.06	39	17	15		61	119	14	.1	7.6	268	167	117
Oct. 21-31,-------	875	61	8	7.0	355	7.3	.06	34	14	13		60	93	13	.1	6.8	222	142	93
Nov. 1-10,--------	1505	61	5	7.0	358	7.4	.06	34	15	12		61	94	13	.1	7.1	229	147	97
Nov. 11-20,-------	897	54	5	7.0	330	8.1	.05	32	13	7.1		57	76	12	.1	7.2	203	133	87
Nov. 21-25,-------	6818	50	5	7.2	371	7.8	.06	35	15	8.4		55	94	13	.1	7.2	234	149	104
Nov. 26-30,-------	21074	50	5	6.9	203	7.7	.06	17	7.6	6.9		21	58	5.1	.1	4.6	130	74	56
Dec. 1-10,--------	12050	45	4	6.7	243	7.5	.02	26	10	1.8		20	79	5.4	.1	4.2	153	106	90
Dec. 11-20,-------	4591	40	3	6.8	285	8.2	.02	27	12	3.7		25	87	6.5	.1	5.2	182	117	96
Dec. 21-31,-------	1861	36	5	6.8	359	9.4	.05	34	16	9.5		36	116	9.2	.1	9.7	244	151	121
Jan. 1-10, 1951---	2485	38	5	6.9	332	8.5	.06	32	15	5.7		37	100	9.2	.1	7.9	222	142	111
Jan. 11-20,-------	4779	38	6	6.9	257	7.3	.08	24	11	6.3		36	68	8.0	.1	8.7	167	105	76
Jan. 21-31,-------	5436	40	4	6.8	241	5.0	.05	22	9.7	7.9		30	70	6.5	.1	6.4	151	95	70
Feb. 1-10,--------	8415	38	3	6.8	230	4.6	.07	22	9.6	4.6		26	66	6.0	.1	7.0	142	94	73
Feb. 11-20,-------	5109	37	3	6.9	250	5.5	.06	24	11	4.4		31	72	6.0	.2	6.7	155	105	80
Feb. 21-28,-------	7221	41	3	7.2	224	11	.09	22	9.5	4.1		33	60	5.4	.1	6.9	144	94	67
Mar. 1-10,--------	4389	45	2	7.4	258	12	.06	25	12	4.6		39	72	6.4	.1	6.9	169	112	80
Mar. 11-20,-------	3750	46	1	7.5	275	12	.06	26	12	6.8		43	75	7.2	.0	6.9	178	114	79
Mar. 21-31,-------	5253	47	3	7.3	240	11	.07	23	10	5.6		38	63	6.0	.0	6.7	150	98	67
Apr. 1-10,--------	4425	51	2	7.0	257	8.7	.05	23	11	5.2		33	71	6.4	.1	4.6	170	103	76
Apr. 11-20,-------	5172	54	3	7.1	250	8.6	.08	24	10	6.0		37	68	6.1	.2	4.8	162	101	71
Apr. 21-30,-------	2940	55	3	7.3	281	7.7	.05	27	12	6.6		42	79	7.6	.1	4.3	188	117	82
May 1-10,---------	2023	64	3	7.3	304	6.5	.08	28	13	7.4		46	82	7.9	.2	3.8	200	123	84
May 11-20,--------	1361	64	3	7.2	344	6.6	.04	33	15	11		60	95	9.8	.2	6.6	216	144	95
May 21-31,--------	1290	69	5	7.4	358	7.2	.04	34	17	8.3		65	95	10	.2	7.4	226	155	102
June 1-10,--------	1138	74	4	7.4	355	8.9	.03	34	16	9.5		64	95	9.5	.2	7.4	226	151	98
June 11-20,-------	1425	72	4	7.7	375	12	.03	34	16	8.9		62	96	10	.1	6.1	238	151	100
June 21-30,-------	1385	82	4	7.4	376	9.8	.02	35	17	6.7		62	98	10	.1	5.7	237	157	106
July 1-10,--------	1504	82	3	7.4	315	11	.02	29	13	6.5		56	75	7.5	.1	6.3	195	126	80
July 11-20,-------	1253	83	5	7.5	354	8.2	.07	32	15	8.3		60	88	9.8	.1	6.0	213	142	92
July 21-31,-------	1480	80	5	7.3	366	10	.03	32	16	7.6		59	99	4.5	.1	5.2	220	146	97
Aug. 1-10,--------	921	78	4	7.5	388	7.8	.01	34	19	13		30	137	14	.1	5.1	266	163	138
Aug. 11-20,-------	1312	82	4	7.4	436	8.1	.03	37	20	20		38	157	14	.1	4.2	280	175	143
Aug. 21-31,-------	633	79	5	7.2	427	5.6	.04	36	19	15		42	137	14	.1	4.2	270	168	134
Sept. 1-10,-------	771	76	4	7.6	446	6.6	.01	39	19	16		50	139	14	.1	4.8	282	175	134
Sept. 11-20,------	650	75	4	7.8	475	5.8	.03	42	20	18		52	148	16	.1	6.0	310	187	144
Sept. 21-30,------	362	73	5	7.8	510	6.6	.01	45	22	19		57	163	17	.1	6.2	341	203	156
Average--------	3434	59	4	7.2	332	8.3	.05	31	14	9.1		46	95	9.8	.1	6.2	213	135	98

DELAWARE RIVER BASIN

LITTLE SCHUYLKILL RIVER AT DREHERSVILLE, PA.

Chemical analyses, in parts per million, water year October 1949 to September 1950

Data of collection	Mean discharge (second feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfates (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$		Total acidity as H_2SO_4
																				Total	Non carbonate	
Oct. 3, 1949	62	64	7	3.60	923	9.5	21	0.70	5.7	62	40	17		0	464	5.0	0.0	2.8	744	319	319	170
Oct. 10	62	73	5	3.60	975	12	16	.34	6.5	72	44	19		0	498	8.0	.0	1.0	806	361	361	188
Oct. 17	51	56	5	3.65	1,050	16	17	.16	6.8	79	45	18		0	527	8.0	.0	1.2	815	382	382	216
Oct. 24	48	58	3	3.80	1,120	15	18	.15	7.2	87	52	17		0	567	6.0	.0	4.0	904	431	431	208
Oct. 31	93	61	4	3.45	884	14	16	.17	5.5	68	37	11		0	439	4.0	.0	3.4	662	322	322	150
Nov. 9	73	47	2	3.40	879	13	14	.27	5.4	68	35	14		0	430	5.0	.0	6.6	652	314	314	150
Nov. 15	109	49	1	3.70	567	10	10	.13	3.3	43	24	6.0		0	265	7.0	.0	4.2	392	206	206	111
Nov. 21	78	42	2	3.40	856	12	16	.55	5.1	58	35	12		0	418	5.0	.0	6.0	616	289	289	158
Dec. 2	76	39	5	3.60	936	12	17	.15	5.4	74	38	14		0	458	7.0	.0	6.8	694	341	341	152
Dec. 9	65	32	5	3.55	948	14	21	.15	6.1	68	39	15		0	468	6.0	.0	6.6	709	330	330	168
Dec. 14	264	32	4	4.15	354	8.0	4.7	.08	1.8	24	11	10		0	144	3.5	.0	3.0	244	105	105	50
Dec. 20	163	43	4	4.00	461	9.2	7.6	.10	2.6	31	16	11		0	195	4.5	.0	4.1	333	143	143	72
Dec. 29	435	42	2	4.25	274	7.8	4.4	.06	1.2	17	9.6	2.2		0	109	4.0	.0	2.4	173	82	82	46
Jan. 5, 1950	226	51	3	3.95	480	9.9	9.4	.10	2.4	31	18	9.7		0	211	6.0	.0	4.4	318	151	151	76
Jan. 12	425	37	2	4.25	301	8.1	3.4	.04	1.2	19	11	8.6		0	116	2.5	.0	5.2	190	93	93	48
Jan. 18	256	42	2	4.00	447	9.4	5.5	.09	2.0	28	16	8.0		0	186	4.5	.0	5.4	288	136	136	68
Jan. 25	203	44	2	4.10	499	9.8	10	.09	2.5	34	20	11		0	241	7.0	.0	4.6	343	167	167	76
Feb. 2	336	37	2	4.20	417	8.2	7.1	.08	1.9	29	16	8.0		0	170	7.0	.0	5.8	268	138	138	56
Feb. 8	269	36	1	4.30	413	9.0	8.1	.07	1.7	29	16	5.7		0	173	7.0	.0	3.9	276	138	138	60
Feb. 17	750	39	2	4.35	241	7.5	4.4	.11	.9	15	8.1	3.6		0	99	4.0	.0	5.0	148	71	71	46
Feb. 20	450	34	3	3.95	387	8.9	8.6	.12	1.5	22	14	4.7		0	172	5.0	.0	3.8	249	112	112	66
Feb. 28	247	32	5	3.70	546	10	11	.17	2.8	34	22	5.8		0	248	3.0	.0	2.7	365	175	175	84
Mar. 7	163	37	1	4.00	619	10	14	.13	3.1	42	28	9.6		0	302	7.0	.0	2.6	468	220	220	106
Mar. 14	274	40	2	4.35	428	8.6	6.8	.07	2.0	29	17	5.6		0	179	4.5	.0	4.8	296	142	142	66
Mar. 21	707	37	3	4.5	393	7.5	7.0	.14	2.1	28	16	6.9		2	171	3.0	.0	2.8	281	136	134	64
Mar. 28	1,180	47	3	4.7	242	6.5	3.6	.05	1.0	15	8.4	5.3		2	93	2.0	.0	3.0	154	72	70	40
Apr. 13	252	40	3	4.45	395	8.2	7.9	.08	1.9	26	16	5.1		0	169	2.5	.0	2.6	284	131	131	74
Apr. 14	235	41	2	4.45	526	10	12	.10	2.9	39	23	10		0	256	3.0	.0	1.9	421	192	192	96
Apr. 18	191	50	3	4.20	558	11	12	.13	3.0	38	23	11		0	266	2.5	.0	2.2	435	189	189	112
Apr. 25	239	52	3	4.05	491	9.4	11	.09	2.7	35	20	10		0	232	3.0	.0	2.2	369	170	170	90
May 2	328	51	2	4.6	366	8.2	6.8	.12	1.8	24	14	6.6		0	161	1.5	.0	2.4	258	117	114	66
May 9	218	52	2	4.45	482	10	9.7	.14	2.6	33	19	8.7		0	219	3.5	.0	4.6	349	160	160	78
May 16	231	62	2	3.85	490	8.9	10	.13	2.7	36	20	7.5		0	229	3.0	.0	2.0	360	172	172	86
May 23	252	--	2	4.10	401	8.2	7.8	.04	2.1	28	17	3.8		0	182	4.5	.0	2.0	336	140	140	67
June 13	170	62	2	3.95	397	8.8	5.7	.07	2.1	27	16	4.3		0	177	5.0	.0	2.4	303	133	133	68
June 19	156	60	3	4.30	553	10	11	.09	2.9	34	22	6.2		0	250	3.5	.0	.4	370	175	175	98
June 27	134	75	2	3.80	1,270	12	22	.12	6.4	104	55	16		0	644	5.0	.0	2.6	985	486	486	212
July 7	195	74	3	4.10	810	12	13	.21	4.2	58	34	12		0	378	3.5	.0	3.6	580	284	284	134
July 18	226	71	2	4.30	665	10	8.7	.10	3.2	56	29	8.0		0	315	3.0	.0	2.7	476	259	259	88
Aug. 7	90	64	2	4.7	909	14	11	.09	6.1	82	49	17		5	470	4.0	.0	2.2	778	406	402	88
Aug. 14	73	65	3	4.8	1,020	15	12	.12	6.8	96	55	22		6	544	6.0	.0	.7	878	466	461	92
Aug. 22	104	61	2	3.60	813	14	18	.19	4.8	54	36	11		0	400	2.0	.0	3.6	600	283	283	280
Sept. 5	64	66	2	3.50	1,010	16	25	.23	6.1	72	47	12		0	530	6.0	.0	2.9	789	373	373	348
Sept. 12	137	66	3	3.65	700	12	15	.11	3.5	48	28	11		0	313	7.0	.0	6.7	476	235	235	202
Sept. 19	90	62	4	3.55	902	15	22	.23	5.1	63	40	12		0	461	6.0	.0	3.3	686	322	322	280
Sept. 26	78	--	3	3.50	1,000	15	26	.52	5.0	70	44	12		0	502	7.0	.0	3.3	769	356	356	330
Average	229	51	3	4.00	639	11	12	.16	3.6	46	27	10		0	305	4.5	.0	3.5	476	227	226	121

Chemical analyses, in parts per million, water year October 1949 to September 1950

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$	
																		Total	Noncarbonate
Oct. 1-10, 1949	4,882	64	7	7.3	170	2.8	.02	23	4.0	5.0		70	18	5.0	.2	1.2	106	74	16
Oct. 11-20,	2,962	64	7	7.4	199	---	---	--	---	---		80	17	7.5	--	.8	---	80	14
Oct. 21-31,	2,645	56	7	7.6	214	4.1	.03	29	4.6	4.7		85	17	9.5	.0	.9	120	91	22
Nov. 1-10,	4,110	51	8	7.7	190	---	---	--	---	---		76	18	6.9	--	1.7	---	78	16
Nov. 11-20,	6,781	48	8	7.6	162	---	---	--	---	---		62	16	5.8	--	2.0	---	65	14
Nov. 21-30,	6,601	38	8	7.5	148	---	---	--	---	---		54	16	4.5	--	1.9	---	60	16
Dec. 1-10,	6,137	35	6	7.6	154	---	---	--	---	---		58	17	4.5	--	1.9	---	64	16
Dec. 11-20,	16,490	35	12	6.9	130	---	---	--	---	---		42	18	5.8	--	3.2	---	50	16
Dec. 21-31,	16,670	38	10	7.0	122	---	---	--	---	---		40	18	4.8	--	2.9	---	49	16
Jan. 1-10, 1950	22,600	40	11	7.0	117	---	---	--	---	---		38	18	4.8	--	3.0	---	48	17
Jan. 11-20,	23,440	--	12	7.1	114	---	---	--	---	---		35	18	3.8	--	3.0	---	46	17
Jan. 21-31,	14,050	38	13	7.1	138	---	---	--	---	---		51	17	4.8	--	3.2	---	58	16
Feb. 1-10,	10,710	34	8	7.4	140	---	---	--	---	---		53	18	5.0	--	2.0	---	61	18
Feb. 11-20,	13,260	34	9	7.4	138	---	---	--	---	---		53	18	4.4	--	2.6	---	57	14
Feb. 21-28,	9,359	32	9	7.4	147	---	---	--	---	---		50	19	4.8	--	2.8	---	59	18
Mar. 1-10,	12,180	33	12	7.5	160	---	---	--	---	---		54	19	5.2	--	3.6	---	64	20
Mar. 11-20,	20,820	34	8	7.0	117	---	---	--	---	---		37	17	3.8	--	2.8	---	44	14
Mar. 21-31,	58,930	37	8	6.9	104	---	---	--	---	---		32	15	2.9	--	2.5	---	42	16
Apr. 1-10,	71,070	42	20	6.8	94.0	4.1	.05	12	2.1	1.9		30	13	1.9	.1	2.4	62	39	14
Apr. 11-20,	22,210	44	15	7.3	127	---	---	--	---	---		48	15	2.9	--	2.9	---	55	16
Apr. 21-30,	24,090	48	6	7.7	119	---	---	--	---	---		44	13	3.1	--	2.3	---	48	12
May 1-10,	18,660	58	8	7.2	125	---	---	--	---	---		46	15	3.0	--	2.1	---	51	13
May 11-20,	10,940	58	6	7.7	151	---	---	--	---	---		58	16	4.0	--	1.4	---	61	13
May 21-31,	10,740	62	5	6.8	147	---	---	--	---	---		58	16	2.9	--	1.4	---	61	13
June 1-10,	18,490	68	8	6.7	118	---	---	--	---	---		43	13	2.6	--	1.9	---	48	13
June 11-20,	6,822	68	5	6.9	161	---	---	--	---	---		63	16	4.5	--	1.4	---	66	14
June 21-30,	4,962	75	8	7.1	183	---	---	--	---	---		73	15	5.2	--	1.5	---	74	14
July 1-10,	3,702	76	8	7.0	186	---	---	--	---	---		75	16	5.8	--	1.2	---	77	16
July 11-20,	4,044	77	8	7.3	193	---	---	--	---	---		81	17	6.5	--	1.4	---	80	14
July 21-31,	4,553	77	10	6.4	181	---	---	--	---	---		76	16	5.8	--	1.4	---	74	12
Aug. 1-10,	3,498	79	10	7.5	186	---	---	--	---	---		76	18	7.1	--	1.0	---	75	13
Aug. 11-20,	3,068	77	10	7.5	192	---	---	--	---	---		79	19	7.5	--	.8	---	77	12
Aug. 21-31,	6,450	75	12	6.9	159	---	---	--	---	---		61	15	5.4	--	1.7	---	65	15
Sept. 1-10,	16,000	73	10	6.9	135	---	---	--	---	---		53	13	3.6	--	1.9	---	54	11
Sept. 11-20,	8,951	68	10	6.9	167	---	---	--	---	---		66	13	4.6	--	1.8	---	70	16
Sept. 21-30,	4,730	64	8	6.8	190	---	---	--	---	---		82	14	5.4	--	1.4	---	84	17
Average	13,900	54	9	7.2	153	---	---	--	---	---		58	16	4.9	--	2.0	---	62	15

SUSQUEHANNA RIVER AT FALLS, PA.

Chemical analyses, in parts per million, water year October 1950 to September 1951

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$	
																		Total	Non-carbonate
Oct. 1-10, 1950	2878	65	5	7.0	213	4.1	.02	29	4.9	--		91	17	8.0	--	.8	119	92	18
Oct. 11-20	10788	56	5	6.8	169	--	--	--	--	--		65	17	5.2	--	1.7	--	74	21
Oct. 21-31,	4025	56	8	7.4	199	--	--	--	--	--		82	18	6.9	--	.9	--	92	25
Nov. 1-10,	9027	55	11	7.3	184	--	--	--	--	--		73	18	7.0	--	1.4	--	74	14
Nov. 11-20,	7140	45	8	7.3	166	--	--	--	--	--		68	17	5.0	--	1.5	--	69	13
Nov. 21-30,	37036	40	13	7.0	119	--	--	--	--	--		42	14	3.5	--	2.2	--	46	12
Dec. 1-10,	55841	36	11	7.1	99.1	3.7	.42	12	2.7	2.3		31	14	2.9	.1	2.1	67	41	16
Dec. 11-20,	22078	34	10	7.3	131	--	--	--	--	--		44	17	3.2	--	2.6	--	51	15
Dec. 21-31,	9419	33	9	7.3	170	--	--	--	--	--		62	19	4.4	--	3.4	--	68	17
Jan. 1-10, 1951	24030	34	7	7.0	134	--	--	--	--	--		44	15	3.6	--	3.0	--	49	13
Jan. 11-20,	14542	35	3	7.3	139	--	--	--	--	--		49	16	3.8	--	2.2	--	54	14
Jan. 21-31,	25857	--	6	7.2	110	--	--	--	--	--		34	12	3.1	--	1.8	--	43	15
Feb. 1-10,	25793	36	9	7.2	112	--	--	--	--	--		37	13	3.4	--	2.0	--	43	13
Feb. 11-20,	22154	38	7	7.3	120	--	--	--	--	--		39	13	3.8	--	1.8	--	47	15
Feb. 21-28,	37323	38	4	7.1	106	--	--	--	--	--		34	14	3.0	--	2.2	--	43	15
Mar. 1-10,	23712	40	6	7.3	124	--	--	--	--	--		41	15	3.5	--	2.0	--	48	14
Mar. 11-20,	22515	40	7	7.3	124	--	--	--	--	--		41	15	4.8	--	1.8	--	48	14
Mar. 21-31,	32421	44	6	7.2	105	--	--	--	--	--		36	13	2.8	--	1.8	--	43	14
Apr. 1-10,	47614	--	2	7.2	104	--	--	--	--	--		36	13	2.5	--	1.9	--	43	14
Apr. 11-20,	28282	48	8	7.8	125	--	--	--	--	5.5		43	14	7.5	--	1.8	--	50	15
Apr. 21-30,	15324	51	7	8.1	144	--	--	--	--	4.9		55	14	7.0	--	1.4	--	60	15
May 1-10,	9327	62	4	7.7	162	--	--	--	--	4.5		66	15	5.8	--	1.1	--	69	15
May 11-20,	6831	65	3	7.7	179	--	--	--	--	3.8		75	15	5.2	--	1.2	--	77	16
May 21-31,	4259	71	3	7.8	200	--	--	--	--	5.7		86	16	6.6	--	1.2	--	85	15
June 1-10,	3677	73	5	8.1	205	--	--	--	--	7.0		90	18	6.0	--	1.4	--	87	13
June 11-20,	6949	69	5	7.9	183	--	--	--	--	3.8		74	19	6.1	--	1.4	--	82	21
June 21-30,	4734	78	5	8.0	192	--	--	--	--	4.8		80	17	5.9	--	1.2	--	82	16
July 1-10,	8861	74	5	7.8	159	--	--	--	--	4.7		65	15	4.8	--	2.1	--	67	14
July 11-20,	7308	78	8	7.5	157	--	--	--	--	3.5		65	14	4.0	--	1.4	--	67	14
July 21-31,	6586	81	5	7.7	166	--	--	--	--	5.7		74	14	4.2	--	1.5	--	70	9
Aug. 1-10,	3486	76	5	7.9	184	--	--	--	--	4.5		77	15	5.9	--	.9	--	78	15
Aug. 11-20,	2789	79	8	7.8	210	--	--	--	--	5.1		90	18	5.4	--	1.1	--	90	16
Aug. 21-23,25-31,	2423	75	5	7.7	202	--	--	--	--	7.9		86	18	7.8	--	1.3	--	84	14
Sept. 1-10,	1881	73	5	7.7	225	--	--	--	--	6.9		94	19	9.8	--	1.6	--	97	20
Sept. 11-20,	2155	72	4	8.0	231	--	--	--	--	5.6		94	19	8.6	--	1.5	--	98	21
Sept. 21-30,	1547	68	3	8.1	246	--	--	--	--	8.6		103	21	11	--	1.0	--	104	19
Average	15133	56	6	7.5	161	--	--	--	--	--		63	16	5.3	--	1.7	--	67	16

Chemical analyses, in parts per million, water year October 1949 to September 1950

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$	
																		Total	Non-carbonate
Oct. 1-10, 1949	5,472	61	5	7.0	257	3.7	.02	28	8.1	7.1		49	67	5.0	.1	1.8	156	103	63
Oct. 11-20,	3,510	61	2	6.8	317	---	---	---	---	---		46	90	7.2	---	2.0	---	124	86
Oct. 21-31,	3,072	60	2	7.0	342	2.4	.04	40	11	6.0		48	101	8.2	---	2.5	212	145	57
Nov. 1-10,	4,667	52	6	7.0	305	---	---	---	---	---		54	85	8.2	---	2.1	---	124	80
Nov. 11-20,	7,348	48	7	6.9	239	---	---	---	---	---		50	58	6.2	---	1.9	---	95	54
Nov. 21-30,	7,339	39	9	6.9	206	---	---	---	---	---		42	50	5.1	---	2.2	---	80	46
Dec. 1-10,	6,730	37	6	7.0	214	---	---	---	---	---		44	53	6.8	---	2.6	---	86	50
Dec. 11-20,	19,250	36	5	6.5	169	---	---	---	---	---		31	42	6.8	---	3.6	---	66	41
Dec. 21-31,	21,860	34	8	6.8	150	---	---	---	---	---		30	36	4.8	---	3.4	---	59	34
Jan. 1-10, 1950	29,450	36	12	6.8	147	---	---	---	---	---		27	36	4.8	---	3.3	---	58	36
Jan. 11-20,	29,610	34	18	7.1	132	4.4	.06	16	3.8	3.5		28	31	3.8	.1	2.8	84	56	33
Jan. 21-31,	16,640	36	7	6.9	181	---	---	---	---	---		38	44	4.2	---	3.5	---	75	44
Feb. 1-10,	14,100	35	7	7.0	182	---	---	---	---	---		38	45	4.0	---	3.3	---	73	42
Feb. 11-20,	18,710	36	7	7.0	179	---	---	---	---	---		35	43	4.4	---	3.4	---	72	43
Feb. 21-28,	12,750	32	8	7.2	198	---	---	---	---	---		31	54	5.0	---	3.3	---	78	53
Mar. 1-9,	9,530	33	5	7.1	240	---	---	---	---	---		34	72	4.8	---	3.6	---	98	70
Mar. 10,	46,300	34	10	7.1	120	---	---	---	---	---		28	30	2.0	---	3.6	---	46	23
Mar. 11-20,	26,640	38	10	7.1	148	---	---	---	---	---		26	37	3.2	---	3.4	---	59	38
Mar. 21-31,	67,180	37	10	6.8	119	---	---	---	---	---		22	29	2.8	---	3.5	---	46	28
Apr. 1-10,	80,880	40	15	7.0	107	---	---	---	---	---		25	23	1.8	---	3.0	---	42	22
Apr. 11-20,	27,030	40	4	7.7	165	---	---	---	---	---		37	37	2.8	---	3.0	---	69	39
Apr. 21-30,	29,090	39	5	7.2	151	---	---	---	---	---		32	34	2.5	---	2.4	---	60	34
May 1-10,	22,880	42	4	7.5	161	---	---	---	---	---		34	37	2.8	---	2.0	---	64	36
May 11-20,	12,560	41	4	7.0	208	---	---	---	---	---		40	55	3.6	---	1.6	---	85	52
May 21-31,	13,620	55	4	6.8	209	---	---	---	---	---		41	54	3.8	---	1.5	---	85	51
June 1-10,	25,620	67	4	6.8	156	---	---	---	---	---		31	37	2.4	---	1.6	---	61	36
June 11-20,	9,248	68	4	6.6	220	---	---	---	---	---		34	67	4.0	---	1.8	---	86	60
June 21-30,	6,428	72	6	6.8	308	---	---	---	---	---		36	86	5.5	---	2.0	---	112	82
July 1-10,	4,708	70	6	6.7	313	---	---	---	---	---		31	108	5.5	---	2.0	---	128	103
July 11-20,	4,930	71	7	6.8	310	---	---	---	---	---		37	102	6.0	---	1.9	---	123	98
July 21-31,	5,305	70	4	7.0	297	---	---	---	---	---		44	89	6.4	---	1.8	---	113	77
Aug. 1-10,	3,997	74	5	7.1	328	---	---	---	---	---		40	108	8.2	---	1.4	---	130	97
Aug. 11-20,	2,702	72	6	7.4	392	---	---	---	---	---		26	144	7.2	---	1.4	---	162	139
Aug. 21-31,	7,941	71	7	7.0	245	---	---	---	---	---		37	66	5.2	---	2.1	---	96	68
Sept. 1-10,	19,450	68	8	6.8	183	---	---	---	---	---		39	44	3.5	---	1.9	---	76	14
Sept. 11-20,	9,974	58	5	7.0	193	---	---	---	---	---		51	40	4.0	---	2.0	---	84	42
Sept. 21-30,	5,320	56	5	7.1	243	---	---	---	---	---		59	57	4.8	---	1.6	---	104	56
Average	16,720	50	7	6.8	218	---	---	---	---	---		37	59	4.7	---	2.5	---	87	54

SUSQUEHANNA RIVER AT DANVILLE, PA.

Chemical analyses, in parts per million, water year October 1950 to September 1951

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$	
																		Total	Non-carbonate
Oct. 1-10, 1950	3207	58	3	7.3	326	2.8	.05	37	12	8.9		60	95	7.8	.2	1.7	209	142	92
Oct. 11-20,	11389	57	7	7.2	217	--	--	--	--	8.5		52	50	7.4	--	1.8	--	88	45
Oct. 21-31,	4459	57	4	7.2	262	--	--	--	--	9.5		59	67	6.5	--	1.7	--	108	60
Nov. 1-10,	9652	58	5	7.2	253	--	--	--	--	9.1		55	63	7.0	--	1.5	--	102	57
Nov. 11-20,	8047	48	5	7.4	197	--	--	--	--	7.4		50	44	5.6	--	1.8	--	80	39
Nov. 21-30,	45679	43	9	6.9	129	--	--	--	--	6.1		34	28	3.8	--	2.3	--	51	23
Dec. 1-10,	67570	38	9	7.0	117	4.5	.38	13	3.8	3.5		25	27	3.5	.2	1.9	78	48	28
Dec. 11-20,	29160	41	3	7.0	158	--	--	--	--	--		30	39	3.0	--	2.0	--	64	39
Dec. 21-31,	11632	--	2	7.0	231	--	--	--	--	--		41	60	4.4	--	3.8	--	96	62
Jan. 1-10, 1951	28450	35	12	7.0	179	--	--	--	--	--		35	47	3.6	--	2.7	--	72	43
Jan. 11-20,	19070	35	3	7.0	175	--	--	--	--	5.9		35	42	4.9	--	3.2	--	69	40
Jan. 21-31,	33664	34	3	7.1	141	--	--	--	--	4.1		28	32	3.2	--	2.7	--	54	31
Feb. 1-10,	34570	32	2	6.9	125	--	--	--	--	3.4		24	28	3.1	--	2.9	--	48	28
Feb. 11-20,	27740	34	3	6.9	148	--	--	--	--	4.1		28	35	3.2	--	2.6	--	57	34
Feb. 21-28,	45362	36	4	6.9	124	--	--	--	--	2.9		25	28	3.1	--	3.0	--	50	30
Mar. 1-10,	29170	35	4	6.9	150	--	--	--	--	--		32	34	3.0	--	2.4	--	57	31
Mar. 11-20,	27510	33	3	7.1	148	--	--	--	--	--		32	33	3.0	--	2.1	--	59	33
Mar. 21-31,	37900	33	3	7.1	128	--	--	--	--	--		30	26	3.1	--	1.8	--	53	28
Apr. 1-10,	56840	35	4	7.1	122	--	--	--	--	--		29	26	2.1	--	1.9	--	49	25
Apr. 11-20,	33640	41	4	7.2	143	--	--	--	--	--		34	31	2.5	--	1.9	--	58	30
Apr. 21-30,	18330	46	3	7.7	186	--	--	--	--	3.1		42	40	3.5	--	2.1	--	76	42
May 1-10,	11132	50	0	7.9	217	--	--	--	--	4.3		46	53	4.4	--	1.7	--	91	53
May 11-20,	7873	62	2	7.7	250	--	--	--	--	4.6		54	62	4.9	--	1.6	--	107	63
May 21-31,	5189	73	3	7.4	286	--	--	--	--	6.6		49	82	5.5	--	1.4	--	120	80
June 1-10,	4632	78	3	7.4	301	--	--	--	--	3.1		50	82	6.5	--	1.7	--	130	89
June 11-13, 15-20,	8612	72	3	7.4	256	--	--	--	--	6.8		48	65	6.0	--	1.7	--	102	63
June 14,	10200	72	8	7.3	144	--	--	--	--	6.8		23	35	5.0	--	3.0	--	50	31
June 21-30,	5992	79	7	7.3	272	--	--	--	--	5.5		39	81	6.0	--	1.4	--	114	82
July 1-10,	10529	77	4	7.1	236	--	--	--	--	4.4		46	59	5.0	--	1.8	--	98	60
July 11-20,	8444	80	6	7.1	232	--	--	--	--	5.1		44	60	4.4	--	1.6	--	95	59
July 21-31,	7226	80	6	7.2	247	--	--	--	--	5.2		50	65	4.4	--	1.9	--	105	64
Aug. 1-10,	4236	78	6	7.8	304	--	--	--	--	8.8		47	94	5.6	--	1.2	--	126	88
Aug. 11-20,	3419	82	5	7.2	352	--	--	--	--	8.9		34	125	7.0	--	1.8	--	150	122
Aug. 21-31,	3028	79	5	7.3	343	--	--	--	--	7.5		40	112	8.1	--	1.8	--	146	113
Sept. 1-10,	2227	74	5	7.2	414	--	--	--	--	6.2		29	150	7.0	--	2.1	--	176	154
Sept. 11-20,	2475	76	5	7.4	380	--	--	--	--	14		48	132	9.0	--	2.0	--	160	121
Sept. 21-30,	1926	67	3	7.7	409	3.8	.02	42	17	8.9		44	134	9.8	.1	2.3	272	175	139
Average	18390	56	5	7.2	224	--	--	--	--	6.3		40	61	5.0	--	2.1	--	93	60

SUSQUEHANNA RIVER AT DANVILLE, PENNSYLVANIA

Cross-section samples for water year ended September 30, 1951

Date	Discharge (second-feet)	Station	Time	Temperature (°F.)	Color	pH	Specific conductance (Micromhoe at 25°C.)	Parts per million: Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Total hardness as $CaCO_3$
Oct. 15,1950		1180	10:00am	61		6.5	325	38	111			
		880	10:00	60		6.8	329	44	111			
		650	10:00	60		6.6	319	50	100			
		465	10:00	59		6.8	307	59	88			
		120	10:00	60		6.8	268	76	69			
Nov. 15,----		1180	5:00pm	50		6.5	233	33	74			
		880	5:00	50		6.7	221	45	63			
		650	5:00	51		6.7	218	52	54			
		465	5:00	50		6.8	210	51	54			
		120	5:00	50		6.7	198	47	47			
Dec. 16,----		1180	2:00pm	43		6.6	180	27	53	2		
		880	2:00	42		6.6	180	29	56	3		
		650	2:00	43		6.8	173	32	47	2		
		465	2:00	44		6.7	170	36	43	3		
		120	2:00	44		6.6	157	32	41	3		
Jan. 14,1951		1180	4:00pm			6.8	183	22	58	3		
		880	4:00			6.9	186	33	51	4		
		650	4:00			7.1	180	36	47	3		
		465	4:00			6.9	176	38	46	3		
		120	4:00			6.8	163	35	39	4		
Feb. 18,----		1180	2:00pm	36		6.2	164	13	47			
		880	2:00	35		6.5	164	21	39			
		650	2:00	36		6.5	162	26	38			
		465	2:00	36		6.5	155	28	32			
		120	2:00	35		6.6	135	26	27			
Mar. 17,----		1180	3:00pm	33		6.6	142	26	30			
		880	3:00	33		6.7	138	29	27			
		650	3:00	33		6.8	136	32	25			
		465	3:00	32		6.8	134	32	25			
		120	3:00	34		7.1	122	30	20			
Apr. 23,----		1180	5:00pm	46		6.5	187	21	52	4		
		880	5:00	44		6.8	197	32	50	4		
		650	5:00	45		6.8	195	38	40	4		
		465	5:00	45		6.8	190	40	38	3		
		120	5:00	44		6.6	135	27	30	3		
May 7,-----		1180	3:00pm	71		6.6	252	41	75	5		
		880	3:00	70		6.8	259	53	72	5		
		650	3:00	70		6.9	257	57	67	6		
		465	3:00	70		7.0	257	60	65	6		
		120	3:00	70		7.0	232	56	57	6		
June 16,----		1180	6:30pm	70		5.6	266	42	73	7	2.5	108
		880	6:30	70		5.8	266	42	63	7	2.4	108
		650	6:30	70		5.9	258	47	66	7	2.1	106
		465	6:30	70		5.9	256	48	60	8	1.8	106
		120	6:30	70		5.7	191	34	46	6	2.4	74
July 15,----		1180	2:45pm	82		5.8	216	38	54	4	.3	90
		880	2:45	82		5.9	216	54	46	6	.4	94
		650	2:45	82		6.1	216	56	44	2	.4	92
		465	2:45	82		6.2	209	54	43	6	1.0	90
		120	2:45	82		6.4	202	52	43	4	1.8	86
Aug. 15,----		1180	2:30pm	85		5.5	325	18	129	7	.8	132
		880	2:30	85		5.5	346	12	132	8	1.2	144
		650	2:30	85		5.6	350	12	133	8	1.3	144
		465	2:30	85		5.9	359	26	128	8	.8	148
		120	2:30	85		6.5	304	34	95	8	1.4	126
Sept. 15,---		1180	4:00pm	75		5.5	334	18	119	9	2.3	136
		880	4:00	75		5.8	363	26	128	9	1.6	154
		650	4:00	75		6.0	364	38	121	8	1.4	152
		465	4:00	75		6.2	364	46	106	9	1.9	154
		120	4:00	75		6.2	331	52	90	9	2.0	134

Cross-Section samples for water year ended September 30, 1950

Date	Discharge (second-feet)	STATION TIME	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Parts per million: Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Total hardness as $CaCO_3$
July 11, 1950		East Channel									
		120 11:00 am	72	2	5.0	420	2	174	6	1.8	174
		600 "	73	2	6.6	312	21	110	8	1.8	127
		1180 "	73	1	6.6	202	20	0	5	2.1	75
		West Chennel									
		600 11:00 am	73	1	--	260	77	20	6	0.8	74
		1100 "	71	1	7.5	291	99	42	10	1.9	111
		1320 "	--	1	7.5	356	185	19	7	7.8	177
July 21, 1950		East Channel									
		120 11:00 am	75	1	6.6	392	7	159	7	1.8	166
		600 "	75	2	6.8	309	32	99	8	1.9	121
		1180 "	--	1	6.7	207	23	59	5	1.8	77
		West Channel									
		600 11:00 am	74	2	7.0	194	31	51	6	1.8	71
		1100 "	73	1	7.3	268	83	45	9	1.5	101
		1320 "	72	1	7.6	340	166	17	7	7.5	158
Auguet 14, 1950		East Channel									
		120 11:00 am	70	1	4.9	481	2	205	8	1.4	208
		600 "	69	2	6.3	354	22	128	7	1.2	144
		1180 "	68	2	6.6	225	20	69	5	1.1	84
		West Channel									
		600 11:00 am	68	2	6.7	223	30	63	6	0.8	88
		1100 "	68	2	6.8	306	89	57	11	0.5	116
		1320 "	69	2	7.1	318	152	25	10	4.8	152
Sept. 18, 1950		East Channel									
		120 11:00 am	66	3	6.4	275	29	84	6	2.8	113
		600 "	64	2	7.6	207	53	42	4	2.7	85
		1180 "	64	2	6.5	160	25	41	4	1.6	60
		West Channel									
		600 11:00 am	64	3	6.5	164	23	40	4	1.6	60
		1100 "	65	3	7.1	254	77	41	6	3.1	104
		1320 "	63	6	6.8	242	101	25	4	5.4	114
Sapt. 25, 1950		East Channel									
		120 11:00 am	52	3	6.1	342	24	120	6	2.2	144
		600 "	54	2	6.5	224	48	61	5	1.6	105
		1180 "	54	2	6.7	191	29	51	4	1.9	73
		Weet Channel									
		600 11:00 am	54	2	7.1	196	37	47	5	1.9	72
		1100 "	54	4	7.0	257	80	43	7	2.3	103
		1320 "	54	7	7.2	256	118	16	4	5.4	116

Cross-section samples for water year ended September 30, 1951

Date	Discharge (second-feet)	Station	Time	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Parts per million: Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Total hardness as $CaCO_3$
Nov. 15, 1950	26,000	East Channel										
		120	11:00 am	43	5	6.5	247	34	76	5	1.8	95
		600	"	42	6	6.7	198	42	50	4	2.0	76
		1180	"	42	4	5.3	115	2	41	3	1.2	36
		West Channel										
		600	11:00 am	41	5	6.3	129	13	41	2	2.0	45
		1100	"	42	6	6.9	170	52	33	4	2.0	68
		1320	"	41	7	7.0	204	89	21	4	4.0	87
Nov. 16, 1950	24,200	East Channel										
		120	10:15 am	55	6	6.2	221	27	68	5	4.0	86
		600	"	56	7	6.3	157	30	38	4	2.5	59
		1180	"	56	6	5.7	100	4	32	2	1.3	33
		West Channel										
		600	10:30 am	55	7	6.0	110	10	34	4	1.1	38
		1100	"	56	10	6.7	168	55	30	3	2.8	68
		1320	10:15 am	54	10	6.8	200	86	22	5	5.2	88
Dec. 20, 1950	33,000	East Channel										
		120	11:00 am	34	2	5.6	278	6	106	5	2.8	114
		600	"	34	2	6.7	181	29	46	4	3.1	72
		1180	"	35	2	6.1	140	12	39	3	3.0	54
		West Channel										
		600	11:00 am	35	7	6.4	136	15	38	3	2.0	52
		1100	"	35	2	7.2	181	62	24	4	4.2	75
		1320	"	35	2	7.9	264	119	19	4	5.7	120
Jan. 15, 1951	40,600	East Channel										
		120	11:00 am	38	4	6.4	218	8	78	5	5.4	88
		600	"	38	3	7.1	171	30	43	3	2.3	68
		1180	"	38	5	6.8	131	13	40	3	1.8	50
		West Channel										
		600	11:00 am	37	5	7.2	129	90	47	2	2.0	50
		1100	"	38	5	7.4	163	79	26	3	3.4	68
		1320	"	37	5	7.7	236	107	17	4	5.8	115
Feb. 15, 1951	85,900	East Channel										
		120	11:00 am	37	4	5.3	224	3	84	4	1.9	90
		600	"	37	5	6.9	164	24	45	5	2.1	65
		1180	"	37	5	6.6	127	16	37	2	1.6	48
		West Channel										
		600	11:00 am	36	5	7.2	148	45	22	3	2.8	64
		1100	"	36	5	7.2	156	51	21	4	3.2	66
		1320	"	36	13	8.1	174	70	17	4	2.6	70
Mar. 16, 1951	59,900	East Channel										
		120	11:00 am	42	5	6.6	222	14	79	3	1.9	92
		600	"	42	4	6.9	164	29	44	1	.2	66
		1180	"	42	2	6.8	110	14	33	1	1.1	44
		West Channel										
		600	11:00 am	45	5	6.9	105	16	29	1	.1	40
		1100	"	44	5	7.5	163	58	24	4	2.3	64
		1320	"	44	4	7.5	228	103	18	2	4.3	104

Cross-section samples for water year ended September 30, 1951

Date	Discharge (second-feet)	Station	Time	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Parts per million: Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Total hardness as $CaCO_3$
Apr. 17, 1951		East Channel										
		120	11:00 am	47	5	8.8	169	27	49	2.0	2.7	68
		600	"	80	7	6.5	129	35	29	2.0	2.5	52
		1180	"	47	7	6.2	111	21	23	2.0	1.9	43
		West Channel										
		600	11:00 am	47	3	6.1	102	12	29	1.0	1.8	39
		1100	"	48	5	6.4	130	42	19	2.0	3.0	54
		1320	"	49	5	6.7	134	48	17	2.0	3.5	58
May 17, 1951		East Channel										
		120	11:00 am	68	2	6.6	336	21	123	6.0	1.7	144
		600	"	68	3	6.8	268	44	76	6.0	2.3	113
		1180	"	68	2	6.5	162	15	52	5.0	1.4	62
		West Channel										
		600	11:00 am	68	2	6.4	153	19	44	5.0	1.4	58
		1100	"	67	3	7.0	194	66	30	6.0	1.7	82
		1320	"	67	4	7.1	223	96	23	5.0	1.9	99
June 15, 1951		East Channel										
		120	11:00 am	65	3	6.0	309	14	117	8.0	3.2	136
		600	"	63	2	6.5	126	21	34	3.0	2.6	49
		1180	"	59	8	6.9	121	38	19	2.0	1.7	50
		West Channel										
		600	11:00 am	60	7	6.8	127	42	21	3.0	2.3	54
		1100	"	60	11	6.5	125	38	20	4.0	3.4	50
		1320	"	60	10	6.6	122	41	20	3.0	7.4	50
Aug. 15, 1951		East Channel										
		145	11:20 am	82	3	4.9	484	2	211	8.0	0.5	221
		600	"	83	4	7.0	333	27	114	8.0	0.9	142
		1220	"	83	6	7.5	221	50	56	7.0	1.9	93
		West Channel										
		600	11:20 am	83	5	7.2	234	70	48	8.0	2.2	118
		1100	"	80	6	7.4	240	77	38	8.0	3.6	93
		1300	"	80	5	7.2	268	133	18	4.0	6.0	132
Sept. 24, 1951		East Channel										
		140	1:10 pm	67	5	4.9	587	2	232	10	1.3	249
		600	"	67	7	6.6	442	28	168	9.5	1.3	186
		1220	"	--	8	6.8	347	51	112	10	1.8	142
		West Channel										
		600	1:10 pm	--	8	7.2	359	77	88	12	1.2	146
		1100	"	--	5	7.2	354	102	54	14	0.8	146
		1320	"	--	5	7.3	249	114	18	7.5	3.4	123

Chemical analyses, in parts per million, water year October 1949 to September 1950

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Non-carbonate
Oct. 1-10, 1949----	210	62	4	3.50	923	--	--	--	--	--		--	475	8.2	--	.1	--	436	436
Oct. 11-20,--------	170	60	6	3.40	1130	--	--	--	--	--		--	655	7.8	--	.1	--	532	532
Oct. 21-31,--------	168	57	5	3.25	1170	--	--	--	--	--		--	659	9.0	--	.3	--	546	546
Nov. 1-10,---------	280	53	4	3.90	828	--	--	--	--	--		--	423	10	--	.6	--	356	356
Nov. 11-20,--------	297	49	4	3.55	895	--	--	--	--	--		--	449	6.5	--	.2	--	370	370
Nov. 21-30,--------	254	42	6	3.45	1000	--	--	--	--	--		--	505	8.8	--	.2	--	428	428
Dec. 1-10,---------	224	41	6	3.40	1060	--	--	--	--	--		--	517	11	--	.2	--	460	460
Dec. 11-12,--------	234	44	8	4.6	940	--	--	--	--	--		4	454	12	--	.8	--	402	390
Dec. 13,14,15,-----	1,527	42	17	6.0	356	--	--	--	--	--		13	146	6.5	--	.8	--	140	129
Dec. 16-22,--------	498	43	6	3.60	651	--	--	--	--	--		0	290	7.5	--	.6	--	256	256
Dec. 23-31,--------	788	42	6	3.80	473	--	--	--	--	--		0	201	6.5	--	1.2	--	182	182
Jan. 1-5,1950------	527	46	7	3.75	630	--	--	--	--	--		0	288	7.5	--	.7	--	258	258
Jan. 6-10,---------	1,189	40	22	3.85	394	--	--	--	--	--		0	163	6.5	--	.8	--	148	148
Jan. 11-20,--------	719	40	5	3.60	589	--	--	--	--	--		0	262	7.5	--	.6	--	242	242
Jan. 21-31,--------	458	45	5	3.40	764	--	--	--	--	--		0	250	7.5	--	.8	--	314	314
Feb. 1-10,---------	427	41	7	3.45	772	--	--	--	--	--		0	349	12	--	.7	--	322	322
Feb. 11-20,--------	520	40	3	3.50	636	--	--	--	--	--		0	269	8	--	.2	--	232	232
Feb. 21-28,--------	386	36	6	3.60	915	--	--	--	--	--		0	428	10	--	.2	--	364	364
Mar. 1-8,----------	348	40	--	3.60	1039	--	--	--	--	--		--	---	--	--	--	--	---	---
Mar. 9, 10,--------	2,685	34	--	4.30	177	--	--	--	--	--		--	---	--	--	--	--	---	---
Mar. 11-20,--------	970	41	2	3.80	576	--	--	--	--	--		--	245	6.0	--	.2	--	210	210
Mar. 21-31,--------	2,445	42	3	4.00	368	--	--	--	--	--		--	144	5.0	--	.2	--	124	124
Apr. 1-10,---------	2,379	51	4	3.70	414	--	--	--	--	--		--	171	4.0	--	.2	--	148	148
Apr. 11-20,--------	921	46	4	3.70	708	--	--	--	--	--		--	317	6.0	--	.2	--	278	278
Apr. 21-31,--------	1,024	50	3	3.90	593	--	--	--	--	--		--	258	6.0	--	.2	--	226	226
May 1-10,----------	906	55	4	3.80	610	--	--	--	--	--		--	266	5.0	--	.2	--	236	236
May 11-20,---------	658	56	3	3.50	838	--	--	--	--	--		0	385	5.0	--	.2	--	330	330
May 21-31,---------	755	59	3	3.55	675	--	--	--	--	--		0	294	6.0	--	.1	--	260	260
June 1-3,6-10,-----	680	62	3	3.50	713	--	--	--	--	--		0	320	6.0	--	.1	--	280	280
June 4-5,----------	1,180	61	2	3.80	396	--	--	--	--	--		0	158	3.5	--	.1	--	140	140
June 11-20,--------	488	62	5	3.50	809	--	--	--	--	--		0	375	7.0	--	.2	--	320	320
June 21-30,--------	354	67	4	3.40	1020	--	--	--	--	--		0	491	9.0	--	.4	--	425	425
July 1-9,----------	294	61	20	3.40	1170	--	--	--	--		5.4	--	491	7.2	--	.5	--	510	510
July 10,-----------	222	68	25	4.6	651	--	--	--	--		8.2	--	297	6.0	--	.4	--	300	300
July 11,14,19,20,--	394	68	15	5.1	610	--	--	--	--		2.9	2	248	7.0	--	.8	--	264	252
July 12,13,15-18,--	354	69	15	3.30	1090	--	--	--	--	39		0	513	4.2	--	.4	--	455	450
July 21, 25,-------	398	73	10	3.50	604	--	--	--	--	25		0	241	9.0	--	.4	--	210	210
July 22-24,26-31,--	315	65	10	3.30	1090	--	--	--	--	32		--	505	6.0	--	.5	--	465	465
Aug. 1-10,---------	237	68	18	3.30	1130	--	--	--	--	39		--	541	7.5	--	.5	--	490	490
Aug. 11-20,--------	208	68	20	3.30	1320	--	--	--	--	53		--	660	9.0	--	.6	--	585	585
Aug. 21-31,--------	190	66	4	3.30	1380	--	--	--	--	--		--	651	5.1	--	.5	--	560	560
Sept. 1-9,---------	170	67	3	3.40	1280	--	--	--	--	--		--	640	4.0	--	.5	--	540	540
Sept. 10,----------	270	68	6	6.7	705	--	--	--	--	--		0	250	9.0	--	.3	--	335	335
Sept. 11,----------	352	61	4	4.40	512	--	--	--	--	--		--	220	4.0	--	.2	--	215	215
Sept. 12-20,-------	233	61	4	3.40	1070	--	--	--	--	--		--	517	3.9	--	.2	--	435	435
Sept. 21-30,-------	149	56	3	3.40	1310	--	--	--	--	--		--	650	5.2	--	.3	--	550	550
Average----------	592	54	7	3.75	814	--	--	--	--	--		--	379	7.1	--	.4	--	347	347

LACKAWANNA RIVER AT OLD FORGE, PA.

Chemical analyses, in parts per million, water year October 1950 to September 1951

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$		Total acidity as H_2SO_4
																				Total	Non-carbonate	
Oct. 1-10, 1950-----	130	59	4	3.35	1330	15	9.7	1.1	.30	109	77	24		0	684	6.2	.4	.6	1020	589	569	142
Oct. 11-20,----------	143	57	4	3.50	1240	--	--	--	--	--	--	--		--	638	7.0	--	.6	--	545	545	130
Oct. 21-31,----------	148	56	4	3.40	1240	--	--	--	--	--	--	--		--	635	5.1	--	.4	--	535	535	142
Nov. 1, 2, 4,--------	164	64	25	3.55	1180	--	--	--	--	--	--	--		--	590	12	--	.8	--	510	510	156
Nov. 3, 5,-----------	346	56	5	6.8	693	--	--	--	--	--	--	--		66	242	11	--	.7	--	310	256	--
Nov. 6-10,-----------	300	51	5	3.60	811	--	--	--	--	--	--	--		--	373	8	--	.8	--	340	340	--
Nov. 11-19,----------	183	47	8	3.50	1080	--	--	--	--	--	--	--		--	512	12	--	.7	--	460	460	120
Nov. 20,------------	200	48	5	6.4	757	--	--	--	--	--	--	--		38	309	8	--	.9	--	348	317	--
Nov. 21-24,----------	273	42	6	3.60	814	--	--	--	--	--	--	--		--	378	9	--	.9	--	330	330	100
Nov. 25-27,----------	3737	41	8	4.10	231	--	--	--	--	--	--	--		--	85	4	--	.5	--	68	68	21
Nov. 28-30,----------	1201	41	10	3.80	486	--	--	--	--	--	--	--		--	206	4	--	.8	--	190	190	51
Dec. 1-3, 9, 10,-----	1309	40	10	3.65	623	--	--	--	--	--	--	--		--	267	5	--	.9	--	235	235	68
Dec. 4-8,------------	3702	40	8	4.5	172	--	--	--	--	--	--	--		--	61	4	--	.9	--	60	60	13
Dec. 11-13,15-20,----	811	39	5	3.50	714	--	--	--	--	--	--	--		--	305	6	--	.9	--	260	260	74
Dec. 14,-------------	828	40	5	4.5	295	--	--	--	--	--	--	--		--	124	4	--	.7	--	110	110	24
Dec. 21-31,----------	388	41	5	3.35	1100	--	--	--	--	--	--	--		--	501	8	--	.9	--	450	450	116
Jan. 1-3, 1951------	321	43	8	3.35	1100	--	--	--	--	--	--	--		--	505	7	--	1.0	--	435	435	122
Jan. 4-10,-----------	942	35	5	3.80	501	--	--	--	--	--	--	--		--	207	5	--	.7	--	190	190	46
Jan. 11-19,----------	607	40	8	3.60	711	--	--	--	--	--	--	10		--	315	8	--	1.3	--	268	268	74
Jan. 20,-------------	860	43	8	3.90	424	--	--	--	--	--	--	20		--	174	5	--	3.6	--	148	148	46
Jan. 21,23,27-31,----	772	36	5	3.65	548	--	--	--	--	--	--	18		--	212	7	--	2.1	--	194	194	61
Jan. 22,24-26,------	1420	36	5	4.25	242	--	--	--	--	--	--	11		--	92	5	--	3.0	--	82	82	20
Feb. 1,3-6,9,10,-----	1028	36	8	3.90	432	--	--	--	--	--	--	19		--	175	7	--	1.2	--	152	152	42
Feb. 2, 8,-----------	1900	34	10	4.35	183	--	--	--	--	--	--	7.9		--	65	6	--	1.4	--	60	60	14
Feb. 7,-------------	1860	35	8	5.6	98.2	--	--	--	--	--	--	5.2	6	--	28	3	--	1.1	--	28	28	--
Feb. 11,12,15-19,----	891	39	8	3.70	540	--	--	--	--	--	--	18		--	209	7	--	1.0	--	188	188	52
Feb. 13,14,20,------	1177	40	10	4.20	342	--	--	--	--	--	--	27		--	163	7	--	1.0	--	122	122	30
Feb. 21-23,----------	2030	37	8	4.25	246	--	--	--	--	--	--	12		--	92	6	--	2.3	--	80	80	20
Feb. 24-28,----------	1025	40	5	3.80	508	--	--	--	--	--	--	21		--	210	8	--	1.0	--	184	184	49
Mar. 1-10,-----------	793	41	5	3.65	631	--	--	--	--	--	--	31		--	268	9	--	1.0	--	224	224	59
Mar. 11-20,----------	894	43	8	3.80	537	--	--	--	--	--	--	21		--	231	7	--	1.0	--	206	206	47
Mar. 21-29,----------	1185	43	2	4.05	428	--	--	--	--	--	--	13		--	168	2.4	--	2.3	--	152	152	42
Mar. 30,31,----------	2910	46	2	4.40	198	--	--	--	--	--	--	7.8		--	67	2.2	--	2.5	--	58	58	22
Apr. 1-4,------------	1733	44	2	4.10	319	--	--	--	--	--	--	9.9		--	122	1.6	--	2.7	--	110	110	28
Apr. 5,-------------	1130	42	13	5.9	57.4	--	--	--	--	--	--	--	1	10	--	--	--	--	--	4	3	--
Apr. 6-10,-----------	832	49	3	3.60	601	--	--	--	--	--	--	21		--	244	1.8	--	.7	--	212	212	58
Apr. 11, 12,--------	1160	48	3	3.80	438	--	--	--	--	--	--	15		--	174	3.5	--	.9	--	154	154	40
Apr. 13-16,----------	2053	45	2	4.20	262	--	--	--	--	--	--	9.9		--	95	1.4	--	.9	--	80	80	26
Apr. 17-20,----------	934	48	1	3.70	575	--	--	--	--	--	--	19		--	236	1.6	--	.5	--	206	206	40
Apr. 21-30,----------	667	54	1	3.60	699	--	--	--	--	--	--	27		--	293	2.1	--	.6	--	250	250	46
May 1-10,------------	408	57	5	3.50	1000	--	--	--	--	--	--	33		--	454	6.6	--	.3	--	410	410	96
May 11-20,-----------	320	60	5	3.40	1260	--	--	--	--	--	--	47		--	598	5.2	--	.6	--	528	528	124
May 21-27, 29,-------	273	61	3	3.25	1380	--	--	--	--	--	--	55		--	639	6.6	--	.1	--	554	554	148
May 28,--------------	253	59	8	5.60	933	--	--	--	--	--	--	30	6	461	10	--	--	.4	--	434	429	--
May 30, 31,----------	465	65	5	3.80	712	--	--	--	--	--	--	28		--	323	4.2	--	.3	--	282	282	64

Chemical analyses, in parts per million, water year October 1950 to September 1951

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$		Total acidity as H_2SO_4
																				Total	Non-carbonate	
June 1-10, 1951	349	66	4	3.50	951	--	--	--	--	--	--	39		--	435	4.2	--	.4	--	374	374	90
June 11-12, 15-20,	471	62	3	3.60	790	--	--	--	--	--	--	35		--	340	3.2	--	.5	--	282	282	68
June 13-14,	489	57	5	6.1	509	--	--	--	--	--	--	22		12	221	6.1	--	.2	--	202	192	--
June 21-30,	383	67	3	3.40	1050	--	--	--	--	--	--	39		--	489	1.8	--	.1	--	426	426	102
July 1-6,	597	65	5	3.70	618	--	--	--	--	--	--	19		--	272	2.9	--	.1	--	246	246	52
July 7-10,	352	66	5	3.50	973	--	--	--	--	--	--	43		--	462	3.9	--	.2	--	394	394	96
July 11-20,	288	67	4	3.45	1160	--	--	--	--	--	--	54		--	551	9	--	.3	--	470	470	104
July 21-31,	247	71	3	3.50	1220	--	--	--	--	--	--	59		--	590	9	--	.6	--	500	500	134
Aug. 1-10,	193	66	3	3.50	1340	--	--	--	--	--	--	57		--	691	10	--	.6	--	610	610	130
Aug. 11-20,	200	69	4	3.60	1290	--	--	--	--	--	--	55		--	660	9	--	.4	--	580	580	110
Aug. 21-31,	1519	65	3	3.70	1340	--	--	--	--	--	--	57		--	694	11	--	.4	--	615	615	132
Sept. 1-10,	145	64	2	3.55	1360	--	--	--	--	--	--	58		--	699	13	--	.3	--	620	620	144
Sept. 11-20,	156	64	4	3.65	1260	--	--	--	--	--	--	53		--	642	11	--	.7	--	570	570	118
Sept. 21-30,	138	63	5	3.50	1350	--	--	--	--	--	--	53		--	666	12	--	.2	--	595	595	126
Average	633	50	6	3.97	744	--	--	--	--	--	--	29		--	342	7.6	--	1.1	--	302	300	77

WEST BRANCH SUSQUEHANNA RIVER AT LOCK HAVEN, PENNSYLVANIA

Chemical analyses, in parts per million, water year October 1949 to September 1950

Data of collaction	Maan discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfata (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrata (NO_3)	Dissolved solids	Hardness as $CaCO_3$	
																		Total	Noncarbonata
Oct. 1-10, 1949	547	61	5	3.30	537	---	--	--	--	--		0	190	6	--	.0	---	147	147
Oct. 11-20,	492	59	--	3.35	511	---	--	--	--	--		0	182	6	--	.0	---	134	134
Oct. 21-31,	375	51	10	3.25	539	---	--	--	--	--		0	198	8	--	.7	---	145	145
Nov. 1-10,	739	46	5	3.30	540	---	--	--	--	--		0	194	7	--	.6	---	140	140
Nov. 11-20,	735	46	10	3.40	430	---	--	--	--	--		0	157	5	--	.6	---	118	118
Nov. 21-30,	896	36	10	3.60	363	---	--	--	--	--		0	130	6	--	.5	---	100	100
Dec. 1-10,	1,774	34	4	3.80	321	---	--	--	--	--		0	109	4	--	.4	---	88	88
Dec. 11-20,	6,293	41	1	4.05	195	---	--	--	--	--		0	66	2	--	.3	---	56	56
Dec. 21-31,	8,547	38	7	4.6	119	---	--	--	--	--		2	41	1	--	.5	---	38	38
Jan. 1-10, 1950	15,750	40	2	4.40	119	---	--	--	--	--		0	40	3	--	1.5	---	35	35
Jan. 11-20,	16,170	38	5	3.80	166	---	--	--	--	--		0	51	2	--	1.4	---	39	39
Jan. 21-31,	8,338	38	5	3.90	176	---	--	--	--	--		0	53	2	.0	1.3	---	38	38
Feb. 1-10,	6,880	36	5	3.90	180	---	--	--	--	--		0	59	1	.0	1.4	---	48	48
Feb. 11-20,	14,260	38	10	3.80	183	---	--	--	--	--		0	57	4	.0	1.4	---	46	46
Feb. 21-28,	7,746	32	5	3.80	207	---	--	--	--	--		0	64	2	.0	1.4	---	60	60
Mar. 1-10,	4,684	32	5	3.70	254	---	--	--	--	--		0	80	3	.0	1.3	---	60	60
Mar. 11-20,	7,070	33	0	3.95	173	---	--	--	--	--		0	54	2	--	.9	---	44	44
Mar. 21-31,	22,960	39	5	4.05	143	---	--	--	--	--		0	43	1	--	1.1	---	40	40
Apr. 1-10,	20,970	42	0	4.20	113	---	--	--	--	--		0	33	2	--	.9	---	28	28
Apr. 11-20,	5,854	42	0	3.90	173	---	--	--	--	--		0	52	2	--	1.2	---	39	39
Apr. 21-30,	8,353	46	0	4.00	176	---	--	--	--	--		0	54	0	--	1.2	---	42	42
May 1-10,	8,954	52	5	4.20	132	---	--	--	--	--		0	40	0	--	1.0	---	35	35
May 11-20,	5,214	57	0	4.05	182	---	--	--	--	--		0	57	0	--	.8	---	44	44
May 21-31,	7,834	61	5	4.10	152	---	--	--	--	--		0	45	0	--	.8	---	36	36
June 1-10,	6,944	64	5	4.20	141	---	--	--	--	--		0	43	1	--	.8	---	38	38
June 11-20,	4,218	67	5	4.05	188	---	--	--	--	--		0	60	2	--	.8	---	48	48
June 21-30,	1,942	71	5	3.85	262	---	--	--	--	--		0	86	2	--	1.4	---	69	69
July 1-10,	1,983	72	2	3.60	351	---	--	--	--	--		0	113	3	--	.7	---	89	89
July 11-20,	2,015	73	2	3.70	280	---	--	--	--	--		0	87	2	--	.7	---	73	73
July 21-31,	2,521	72	2	3.80	266	---	--	--	--	--		0	87	2	--	.8	---	71	71
Aug. 1-10,	1,822	72	1	3.70	288	---	--	--	--	--		0	101	2	--	1.0	---	75	75
Aug. 11-20,	1,458	71	1	3.65	339	---	--	--	--	--		0	109	3	--	.7	---	93	93
Aug. 21-31,	1,932	78	1	3.80	255	---	--	--	--	--		0	82	3	--	.8	---	67	67
Sept. 1-10,	2,545	71	1	4.00	251	---	--	--	--	--		0	86	2	--	.7	---	71	71
Sept. 11-20,	2,735	65	2	3.90	257	---	--	--	--	--		0	85	2	--	.6	---	69	69
Sept. 21-30,	1,457	67	2	3.85	278	---	--	--	--	--		0	92	3	--	.7	---	77	77
Averaga	5,937	52	4	3.80	263	---	--	--	--	--		0	84	3	--	.9	---	68	68

Chemical analyses, in parts per million, water year October 1950 to September 1951

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Non-carbonate	Total acidity as H_2SO_4
Oct. 1-9, 1950	1735	59	1	3.70	351	--	--	--	--	--	--	--		0	117	5	--	1.6	--	95	95	43
Oct. 10-20,	12773	53	1	4.20	137	--	--	--	--	--	--	--		--	44	1	--	1.6	--	37	37	14
Oct. 21-31,	3304	51	1	3.90	208	--	--	--	--	--	--	--		--	67	1	--	1.0	--	54	54	23
Nov. 1-4,	4250	51	1	3.85	236	--	--	--	--	--	--	--		--	79	2	--	.9	--	62	62	26
Nov. 5-10,	24038	48	1	4.25	115	--	--	--	--	--	--	--		--	37	1	--	1.8	--	32	32	12
Nov. 11-20,	7172	42	1	3.95	160	--	--	--	--	--	--	--		--	51	1	--	.9	--	45	45	19
Nov. 21-30,	33058	37	0	3.85	154	--	--	--	--	--	--	6.6		0	47	1	--	1.4	--	30	30	19
Dec. 1-10,	23192	43	0	3.85	151	--	--	--	--	--	--	4.6		0	44	1	--	1.3	--	31	31	19
Dec. 11-20,	7548	34	5	3.85	215	--	--	--	--	--	--	--		0	69	2.5	--	1.2	--	52	52	32
Dec. 21-31,	3826	33	4	3.70	279	--	--	--	--	--	--	--		0	91	2.8	--	.6	--	67	67	32
Jan. 1-4, 1951	5850	33	3	3.80	254	--	--	--	--	--	--	--		0	84	2.9	--	.4	--	64	64	30
Jan. 5-10,	16783	35	4	4.20	133	--	--	--	--	--	--	--		0	43	1.9	--	.4	--	35	35	14
Jan. 11-20,	11250	34	5	4.00	171	--	--	--	--	--	--	--		0	58	2.5	--	.4	--	45	45	22
Jan. 21-31,	14794	36	5	4.40	133	--	--	--	--	--	--	5.4		0	44	3	--	.9	--	38	38	25
Feb. 1-10,	9900	32	3	4.20	153	--	--	--	--	--	--	5.1		0	50	3	--	.9	--	43	43	23
Feb. 11-20,	12954	35	4	4.15	152	--	--	--	--	--	--	5.2		0	49	4	--	.8	--	43	43	25
Feb. 21-28,	21023	39	2	4.35	116	--	--	--	--	--	--	4.9		0	37	3	--	1.0	--	32	32	21
Mar. 1-10,	19856	40	4	4.5	101	--	--	--	--	--	--	--		0	32	2	--	.5	--	30	30	12
Mar. 11-20,	8391	40	6	4.20	138	--	--	--	--	--	--	--		0	48	2	--	.6	--	37	37	15
Mar. 21-31,	13873	41	6	4.30	128	--	--	--	--	--	--	--		0	42	2	--	.7	--	36	36	15
Apr. 1-10,	17330	45	3	4.30	116	--	--	--	--	--	--	4.0		0	37	2	--	.5	--	31	31	14
Apr. 11-20,	11280	46	2	4.25	132	--	--	--	--	--	--	5.5		0	45	2	--	.3	--	36	36	15
Apr. 21-30,	9120	51	3	4.30	131	--	--	--	--	--	--	5.2		0	44	1	--	.3	--	34	34	13
May 1-10,	8218	58	2	4.15	163	--	--	--	--	--	--	4.6		0	53	2	--	.2	--	45	45	18
May 11-20,	4897	60	7	4.00	208	--	--	--	--	--	--	7.4		0	69	3	--	.2	--	55	55	21
May 21-31,	4526	67	6	3.95	205	--	--	--	--	--	--	5.2		0	65	1	--	.4	--	53	53	25
June 1-10,	2505	70	5	3.85	266	--	--	--	--	--	--	6.8		0	84	2	--	.8	--	69	69	31
June 11-20,	9626	63	3	4.10	172	--	--	--	--	--	--	5.3		0	57	2	--	.2	--	51	51	17
June 21-30,	3167	74	5	3.85	229	--	--	--	--	--	--	7.4		0	77	2	--	.3	--	60	60	22
July 1-10,	3590	74	5	3.90	240	--	--	--	--	--	--	8.4		0	84	2	--	.2	--	66	66	22
July 11-20,	1976	77	5	3.85	258	--	--	--	--	--	--	7.5		0	88	2	--	.2	--	71	71	23
July 21-31,	1906	77	3	3.80	348	--	--	--	--	--	--	8.0		0	122	4	--	1.1	--	108	108	35
Aug. 1-10,	790	75	3	3.80	384	--	--	--	--	--	--	9.2		0	132	4	--	1.4	--	116	116	39
Aug. 11-20,	790	75	3	3.60	552	--	--	--	--	--	--	18		0	205	6	--	1.3	--	172	172	56
Aug. 21-31,	394	72	3	3.70	525	--	--	--	--	--	--	20		0	195	7	--	1.2	--	160	160	54
Sept. 1-10,	354	72	5	3.40	614	--	--	--	--	--	--	--		0	242	6	--	1.1	--	172	172	65
Sept. 11-20,	417	67	5	3.30	731	--	--	--	--	--	--	--		0	302	9	--	1.1	--	206	206	85
Sept. 21-30,	304	63	5	3.25	659	--	--	--	--	--	--	--		0	255	7	--	1.3	--	135	135	74
Average	8643	53	3	3.96	248	--	--	--	--	--	--	--		0	87	2.9	--	.8	--	67	67	28

WEST BRANCH SUSQUEHANNA RIVER AT LEWISBURG, PENNSYLVANIA

Chemical analyses, in parts per million, water year October 1949 to September 1950

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$	
																		Total	Noncarbonate
Oct. 1-10, 1949	1,839	66	—	6.0	213	--	--	--	--	--		16	69	6	--	1.2	--	79	66
Oct. 11-20,	1,687	64	5	6.6	236	--	--	--	--	--		18	76	8	--	1.2	--	89	74
Oct. 21-31,	1,401	57	5	6.7	224	--	--	--	--	--		19	73	8	--	1.1	--	87	71
Nov. 1-10,	2,646	53	5	6.8	198	--	--	--	--	--		21	60	6	--	1.4	--	70	53
Nov. 11-20,	2,812	50	5	6.8	189	--	--	--	--	--		14	62	6	--	1.6	--	68	57
Nov. 21-30,	2,454	40	1	6.9	180	--	--	--	--	--		15	57	6	--	1.9	--	66	54
Dec. 1-10,	3,047	39	1	6.9	199	--	--	--	--	--		12	67	6	--	1.6	--	72	62
Dec. 11-13,15-16,	9,690	38	5	6.6	170	--	--	--	--	--		8	58	4	--	2.6	--	62	55
Dec. 14,17-20,	11,030	40	5	6.6	108	--	--	--	--	--		8	34	2	--	2.4	--	38	31
Dec. 21-31,	17,900	41	1	6.7	92.4	--	--	--	--	--		8	28	2	--	1.6	--	32	25
Jan. 1-10, 1950	27,710	47	1	6.6	87.4	--	--	--	--	--		8	28	2	--	1.4	--	32	25
Jan. 11-20,	28,070	45	5	4.7	107	--	--	--	--	--		2	39	2	--	1.2	--	38	36
Jan. 21-31,	12,930	39	3	5.2	121	--	--	--	--	--		3	40	4	--	1.6	--	50	48
Feb. 1-10, 1950	11,570	39	3	5.7	124	--	--	--	--	--		4	41	3	--	1.6	--	50	47
Feb. 11-20,	23,000	42	3	5.6	122	--	--	--	--	--		5	42	2	--	2.0	--	50	46
Feb. 21-28,	13,050	39	3	4.8	136	--	--	--	--	--		2	57	2	--	1.3	--	56	54
Mar. 1-10,	9,024	36	3	5.9	138	--	--	--	--	--		5	56	3	--	1.9	--	58	54
Mar. 11-20,	13,170	38	3	5.7	113	--	--	--	--	--		4	40	2	--	1.5	--	44	41
Mar. 21-31,	41,940	40	5	6.0	91.1	--	--	--	--	--		6	31	2	--	1.6	--	38	33
Apr. 1-10,	46,270	49	5	5.9	74.3	--	--	--	--	--		4	27	2	--	1.4	--	34	31
Apr. 11-20,	13,756	49	5	6.2	102	--	--	--	--	--		5	32	2	--	1.4	--	38	34
Apr. 21-30,	14,640	52	5	6.5	104	--	--	--	--	--		4	34	2	--	1.1	--	39	37
May 1-10,	16,540	60	5	6.4	88.9	--	--	--	--	--		5	28	1	--	1.0	—	33	29
May 11-20,	9,036	60	0	6.4	113	--	--	--	--	--		6	37	2	--	1.0	—	45	40
May 21-31,	13,250	63	5	6.4	106	--	--	--	--	--		5	37	2	--	.6	—	39	35
June 1-10,	15,290	67	0	6.4	92.1	--	--	--	--	--		5	28	1	--	.8	--	33	29
June 11-20,	8,317	70	0	6.5	115	--	--	--	--	--		6	37	2	--	.8	--	41	36
June 21-30,	4,338	75	0	6.6	144	--	--	--	--	--		8	47	2	--	.9	--	52	45
July 1-10,	3,440	77	0	6.5	192	--	--	--	--	--		8	60	6	--	1.1	--	69	62
July 11-20,	3,713	77	0	6.7	188	--	—	--	--	--		6	65	3	--	1.0	—	68	63
July 21-31,	4,080	76	1	6.6	178	--	--	--	--	--		11	61	3	--	1.1	--	69	60
Aug. 1-10,	3,355	78	1	6.3	165	--	--	--	--	3.3		7	55	4	--	.7	--	62	56
Aug. 11-20,	3,660	74	1	6.4	202	--	--	--	--	4.2		9	68	5	--	1.1	--	77	70
Aug. 21-31,	5,976	73	1	6.1	149	--	--	--	--	4.2		6	53	3	--	.9	--	56	51
Sept. 1-10,	4,529	71	0	6.4	164	--	—	--	--	4.7		7	57	4	--	.7	--	61	55
Sept. 11-20,	5,042	66	1	6.4	157	--	--	--	--	4.1		7	54	3	--	1.0	--	58	52
Sept. 21-30,	2,763	62	1	6.3	169	--	--	--	--	5.2		7	55	4	--	.9	--	58	52
Average	11,230	56	3	6.3	144	--	--	--	--	3.9		8	48	3	--	1.3	--	54	47

Chemical analyses, in parts per million, water year October 1950 to September 1951

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$	
																		Total	Non-carbonate
Oct. 1-10, 1950	3252	62	1	6.5	208	--	--	--	--	6.1		10	68	6	--	1.0	--	75	67
Oct. 11-20,	18809	56	1	5.1	109	--	--	--	--	3.7		2	39	1	--	.6	--	36	34
Oct. 21-31,	5384	55	1	5.8	134	--	--	--	--	3.6		3	49	2	--	.7	--	49	47
Nov. 1-5,	7614	59	1	5.6	172	--	--	--	--	--		3	58	3	--	.6	--	60	58
Nov. 6-10,	32440	51	1	6.0	97.3	--	--	--	--	--		3	32	4	--	1.0	--	31	29
Nov. 11-20,	11364	45	1	5.8	119	--	--	--	--	--		4	40	3	--	.7	--	42	39
Nov. 21-30,	64600	--	1	6.1	102	--	--	--	--	3.8		5	35	2	--	1.1	--	36	32
Dec. 1-10,	49230	41	1	6.0	97.3	--	--	--	--	--		4	31	2	--	1.3	--	34	31
Dec. 11-19,	21278	38	1	6.1	117	--	--	--	--	--		4	42	3	--	1.4	--	44	41
Dec. 20,	9400	32	1	6.5	137	--	--	--	--	--		10	46	3	--	2.2	--	54	46
Dec. 21-31,	7252	34	2	6.6	155	--	--	--	--	--		11	49	4	--	1.8	--	59	50
Jan. 1-4, 1951	8130	37	1	6.8	174	--	--	--	--	--		11	58	3	--	1.3	--	65	56
Jan. 5-9,	30400	32	2	6.5	109	--	--	--	--	--		6	35	4	--	1.5	--	38	33
Jan. 10,	17000	33	1	7.2	219	--	--	--	--	--		30	46	9	--	1.3	--	77	52
Jan. 11-20,	14600	37	1	6.4	123	--	--	--	--	--		6	42	1	--	1.3	--	45	40
Jan. 21-29, 31,	31080	36	1	6.5	95.3	--	--	--	--	--		6	23	2.5	--	1.0	--	32	27
Jan. 30,	15400	34	1	6.4	225	--	--	--	--	--		8	24	40	--	1.4	--	86	79
Feb. 1-10,	19730	33	1	6.4	103	--	--	--	--	--		8	30	2.5	--	1.2	--	39	32
Feb. 11-17,	21844	35	1	6.4	106	--	--	--	--	4.9		7	35	3	--	1.4	--	37	31
Feb. 21-28,	36837	37	2	6.2	87.2	--	--	--	--	2.9		5	28	3	--	1.0	--	32	28
Mar. 1-10,	32220	39	5	6.6	86.1	--	--	--	--	3.0		7	26	2	--	1.2	--	30	24
Mar. 11-20,	18150	43	5	6.7	94.7	--	--	--	--	2.5		8	28	2	--	1.1	--	34	27
Mar. 21-31,	25300	39	5	7.0	91.3	--	--	--	--	2.3		10	27	2	--	1.0	-	35	27
Apr. 1-10,	42500	47	5	6.8	83.5	--	--	--	--	4.0		7	26	2	--	1.4	--	28	22
Apr. 11-20,	22340	49	5	6.7	94.7	--	--	--	--	2.9		8	28	2	--	1.1	--	33	26
Apr. 21-30,	16350	55	3	6.3	97.1	--	--	--	--	3.1		7	30	2	--	1.1	--	34	28
May 1-10,	13026	61	4	6.1	117	--	--	--	--	5.2		5	41	2	--	2.2	--	40	36
May 11-20,	7937	64	5	6.5	146	--	--	--	--	2.9		7.0	49	4	--	1.0	--	57	51
May 21-31,	6879	69	6	6.3	150	--	--	--	--	3.8		6	53	4	--	.8	--	58	53
June 1-10,	4466	73	6	6.7	162	--	--	--	--	3.4		10	51	3	--	1.1	--	59	51
June 11-20,	18703	65	7	5.7	122	--	--	--	--	1.5		4	41	2	--	.6	--	46	43
June 21-30,	6329	76	6	6.7	137	--	--	--	--	3.4		9	44	4	--	.7	--	52	45
July 1-10,	6885	75	5	6.9	159	--	--	--	--	3.1		11	53	1	--	1.5	--	60	51
July 11-20,	3855	75	2	6.9	180	--	--	--	--	3.5		13	51	3	--	2.0	--	62	51
July 21-31,	2767	75	5	6.9	229	--	--	--	--	2.2		15	79	5	--	1.5	--	98	86
Aug. 1-10,	1684	72	5	6.9	233	--	--	-	--	3.0		14	80	5	--	.8	--	96	85
Aug. 11-20,	1730	74	2	6.8	247	--	--	--	--	--		22	85	28	--	1.5	--	96	78
Aug. 21-31,	1045	70	2	6.5	314	--	--	--	--	--		16	109	8	--	1.4	--	124	111
Sept. 1-10,	1011	69	5	7.1	323	--	--	--	--	--		28	118	9	--	1.5	--	130	107
Sept. 11-20,	9959	69	8	7.2	305	--	--	--	--	--		40	94	10	--	1.3	--	122	89
Sept. 21-30,	806	65	10	7.2	352	--	--	--	--	--		31	105	8.0	--	1.4	--	138	113
Average	15938	53	3	6.5	156	--	--	--	--	--		10	49	5	--	1.2	--	59	5[illegible]

FRANKSTOWN BRANCH JUNIATA RIVER AT HUNTINGDON, PENNSYLVANIA

Chemical analyses, in parts per million, water year October 1949 to September 1950

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$	
																		Total	Noncarbonate
Oct. 1-10, 1949	265	62	9	7.4	415	3.6	.02	48	9.8	26		155	44	28	.2	3.3	242	160	33
Oct. 11-20,	282	63	10	7.5	418	---	---	--	---	--		150	33	29	--	1.7	---	168	45
Oct. 21-31,	277	54	11	7.6	417	---	---	--	---	--		151	32	29	--	2.8	---	168	44
Nov. 1-10,	320	51	7	7.4	394	---	---	--	---	--		138	36	28	--	1.5	---	163	50
Nov. 11-20,	292	50	7	7.3	400	---	---	--	---	--		142	36	30	--	1.2	---	165	49
Nov. 21-30,	334	42	8	7.3	407	---	---	--	---	--		138	37	31	--	1.4	---	166	53
Dec. 1-10,	391	40	6	7.2	349	---	---	--	---	--		107	38	24	--	2.0	---	136	48
Dec. 11-20,	1,372	38	7	7.0	256	---	---	--	---	--		73	33	16	--	2.1	---	108	48
Dec. 21-31,	1,437	41	10	7.1	221	---	---	--	---	--		67	32	8.4	--	4.2	---	93	38
Jan. 1-10, 1950	2,242	42	10	6.9	203	---	---	--	---	--		71	31	6.9	--	4.1	---	87	29
Jan. 11-20,	1,899	40	10	7.2	211	---	---	--	---	--		67	30	7.2	--	3.9	---	90	35
Jan. 21-31,	991	44	10	7.3	258	---	---	--	---	--		85	33	10	--	3.9	---	110	40
Feb. 1-10,	1,531	37	7	7.4	221	---	---	--	---	--		72	32	9.5	--	4.5	---	96	37
Feb. 11-20,	3,477	41	9	7.4	198	5.5	.04	24	6.2	5.9		65	29	7.5	.1	4.8	118	85	32
Feb. 21-28,	1,320	36	9	7.6	253	---	---	--	---	--		90	32	10	--	5.4	---	112	38
Mar. 1-10,	871	36	13	7.4	288	---	---	--	---	--		100	32	13	--	6.2	---	124	42
Mar. 11-20,	1,187	38	3	7.2	235	---	---	--	---	--		77	30	10	--	5.0	---	100	37
Mar. 21-31,	3,829	42	4	7.1	180	---	---	--	---	--		58	27	5.2	--	4.5	---	77	29
Apr. 1-10,	2,037	46	4	7.4	192	---	---	--	---	--		64	27	6.0	--	4.0	---	83	31
Apr. 11-20,	947	45	3	7.5	251	---	---	--	---	--		92	28	10	--	4.1	---	110	35
Apr. 21-30,	1,162	46	4	7.2	236	---	---	--	---	--		82	28	9.0	--	3.2	---	101	34
May 1-10,	1,144	58	4	7.3	218	---	---	--	---	--		77	26	8.2	--	3.0	---	92	29
May 11-20,	1,215	62	9	7.2	213	---	---	--	---	--		77	26	7.8	--	3.2	---	90	27
May 21-31,	1,290	64	7	7.1	205	---	---	--	---	--		72	24	7.2	--	2.9	---	86	27
June 1-10,	813	68	9	6.9	246	---	---	--	---	--		87	26	10	--	4.2	---	102	31
June 11-20,	593	70	8	7.0	284	---	---	--	---	--		102	29	14	--	4.5	---	119	35
June 21-30,	440	74	9	7.2	324	---	---	--	---	--		117	32	17	--	4.7	---	135	39
July 1-10,	459	74	8	7.3	331	---	---	--	---	--		121	32	17	--	4.4	---	137	38
July 11-20,	612	74	9	7.3	292	---	---	--	---	--		101	33	13	--	3.8	---	124	41
July 21-31,	407	74	8	7.3	336	---	---	--	---	--		119	33	19	--	3.0	---	140	42
Aug. 1-10,	322	74	12	7.7	376	---	---	--	---	--		134	34	24	--	2.8	---	154	44
Aug. 11-20,	415	73	11	7.6	374	---	---	--	---	--		131	34	25	--	3.1	---	152	45
Aug. 21-31,	338	72	17	7.5	366	---	---	--	---	--		129	38	20	--	3.6	---	150	44
Sept. 1-10,	395	72	17	7.7	354	---	---	--	---	--		122	39	20	--	4.4	---	144	44
Sept. 11-20,	805	69	16	7.5	309	---	---	--	---	--		104	39	13	--	4.4	---	128	43
Sept. 21-30,	439	64	15	7.7	334	---	---	--	---	--		120	38	16	--	3.8	---	138	40
Average	1,007	55	9	7.3	293	---	---	--	---	--		102	32	16	--	3.6	---	122	39

Chemical analyses, in parts per million, water year October 1950 to September 1951

Data of collaction	Maan discharga (secondfaat)	Tamparature (°F.)	Color	pH	Specific conductanca (Micromhos at 25°C.)	Silica (SiO_2)	Iron (Fa)	Calcium (Ca)	Magnasium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrata (NO_3)	Dissolved solids	Hardnass ae $CaCO_3$ Total	Hardnass ae $CaCO_3$ Noncarbonata
Oct. 1-10, 1950	1191	59	9	7.6	352	4.0	.04	40	12	13		130	39	20	.1	3.4	206	149	43
Oct. 11-20,	1374	56	8	7.3	239	--	--	--	--	--		84	36	8.8	--	3.9	--	101	32
Oct. 21-31,	714	58	9	7.5	285	--	--	--	--	--		103	34	13	--	3.6	--	122	38
Nov. 1-10,	1642	50	6	7.5	228	--	--	--	--	--		78	29	9.2	--	2.4	--	97	33
Nov. 11-20,	962	46	4	7.5	249	--	--	--	--	--		88	31	9.8	--	3.3	--	105	33
Nov. 21-30,	5127	40	7	7.4	215	--	--	--	--	--		76	29	6.1	--	4.3	--	92	30
Dec. 1-10,	4434	41	4	8.2	202	6.7	.06	26	6.7	1.6		70	27	5.0	--	4.3	130	92	35
Dec. 11-20,	1907	39	4	7.6	243	--	--	--	--	--		93	28	7.1	--	5.3	--	108	32
Dec. 21-31,	1154	34	9	7.5	276	--	--	--	--	--		106	27	8.6	--	4.6	--	119	32
Jan. 1-10, 1951	2076	38	4	7.3	236	--	--	--	--	5.2		81	30	7.2	--	4.4	--	100	34
Jan. 11-20,	2351	37	4	7.2	212	--	--	--	--	4.3		70	29	5.5	--	3.9	--	89	32
Jan. 21-31,	2492	37	6	7.3	208	--	--	--	--	4.8		70	27	5.8	--	3.8	--	87	30
Feb. 1-10,	1959	35	4	7.4	217	--	--	--	--	4.7		77	27	6.1	--	4.3	--	93	30
Feb. 11-20,	3094	39	4	7.4	199	--	--	--	--	4.0		68	26	5.5	--	3.9	--	85	29
Feb. 21-28,	4000	43	4	7.4	185	--	--	--	--	--		63	25	4.5	--	4.5	--	80	28
Mar. 1-10,	2889	42	2	7.4	194	--	--	--	--	--		65	26	4.9	--	4.7	--	85	32
Mar. 11-20,	1911	43	2	7.5	227	--	--	--	--	--		82	28	6.5	--	5.2	--	100	33
Mar. 21-31,	2594	43	4	7.5	217	--	--	--	--	--		79	26	6.8	--	4.6	--	96	31
Apr. 1-10,	2965	48	6	7.6	202	--	--	--	--	4.8		74	26	6.1	--	5.0	--	90	29
Apr. 11-20,	2404	49	4	7.6	207	--	--	--	--	4.4		76	27	6.0	--	4.6	--	93	31
Apr. 21-30,	1848	56	7	7.7	220	--	--	--	--	5.6		83	26	7.0	--	4.0	--	96	28
May 1-10,	1687	59	3	8.2	217	--	--	--	--	5.3		83[a/]	22	7.4	--	2.5	--	92	26
May 11-20,	1119	62	3	7.7	254	--	--	--	--	7.7		100	25	10	--	3.2	--	108	26
May 21-31,	873	63	6	7.5	273	--	--	--	--	6.9		106	27	11	--	3.2	--	118	31
June 1-10,	845	71	7	7.4	290	--	--	--	--	5.8		106	27	12	--	3.4	--	122	35
June 11-20,	4493	64	16	7.4	191	--	--	--	--	2.0		65	24	4.5	--	2.1	--	82	29
June 21-30,	1085	71	7	7.5	274	--	--	--	--	5.3		100	30	10	--	2.7	--	118	36
July 1-10,	779	72	8	7.6	298	--	--	--	--	5.1		114	30	10	--	3.0	--	130	37
July 11-20,	649	75	5	7.9	313	--	--	--	--	6.3		120	32	12	--	3.8	--	138	40
July 21-28,30,31,	829	75	5	8.0	284	--	--	--	--	8.4		105	33	10	--	3.4	--	124	38
Aug. 1-10,	499	74	4	8.2	337	--	--	--	--	8.5		133	33	15	--	3.7	--	149	40
Aug. 11-20,	454	77	5	8.2	347	--	--	--	--	9.8		137	32	18	--	2.9	--	152	40
Aug. 21-31,	339	74	5	7.7	371	--	--	--	--	9.7		148	32	20	--	2.7	--	164	43
Sept. 1-10,	332	71	5	7.9	373	--	--	--	--	11		154	31	18	--	3.7	--	164	38
Sept. 11-20,	300	70	5	8.0	385	--	--	--	--	13		160	31	22	--	2.7	--	168	37
Sapt. 21-23,25-30,	286	65	5	8.0	405	--	--	--	--	8.9		160	31	19	--	2.7	--	173	42
Average	1747	55	6	7.6	262	--	--	--	--	--		97	29	10	--	3.7	--	113	34

JUNIATA RIVER AT NEWPORT, PENNSYLVANIA

Chemical analyses, in parts per million, water year October 1949 to September 1950

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$	
																		Total	Non-carbonate
Oct. 1-10, 1949	720	65	5	6.5	382	1.1	.30	37	12	23		113	70	18	.1	1.5	260	142	49
Oct. 11-20,	735	64	5	7.6	405	3.3	.04	41	12	20		114	77	15	.1	.7	239	152	58
Oct. 21-31,	764	56	5	7.6	399	--	--	--	--	22		116	74	15	--	1.0	--	146	51
Nov. 1-10,	968	50	7	7.7	344	--	--	--	--	--		105	51	15	--	1.4	--	134	47
Nov. 11-20,	830	48	7	7.7	360	--	--	--	--	--		108	63	15	--	1.6	--	141	52
Nov. 21-30,	741	38	7	7.9	388	--	--	--	--	--		106	74	16	--	2.2	--	142	55
Dec. 1-10,	1,375	36	9	7.3	315	--	--	--	--	18		92	60	14	--	3.3	--	122	47
Dec. 11-20,	3,253	36	10	7.1	222	--	--	--	--	10		60	43	8.5	--	4.7	--	88	39
Dec. 21-31,	5,111	38	10	6.9	174	--	--	--	--	8.3		46	34	6.8	--	4.2	--	68	30
Jan. 1-10, 1950	7,634	39	13	7.0	159	--	--	--	--	8.3		45	29	6.8	--	4.2	--	62	30
Jan. 11-20,	6,555	39	11	7.2	160	--	--	--	--	8.1		47	29	6.8	--	4.0	--	64	26
Jan. 21-31,	2,727	39	9	7.4	210	--	--	--	--	11		65	37	7.5	--	3.5	--	82	29
Feb. 1-10,	5,559	39	12	7.2	157	--	--	--	--	6.3		51	26	4.0	--	3.9	--	64	22
Feb. 11-20,	15,560	41	16	7.2	121	6.3	.09	14	3.5	3.1		33	20	2.9	.1	4.8	74	49	22
Feb. 21-28,	5,275	36	8	7.4	166	--	--	--	--	--		52	27	3.5	--	5.0	--	70	27
Mar. 1-10,	2,987	36	13	7.6	208	--	--	--	--	--		66	35	5.4	--	5.6	--	86	32
Mar. 11-20,	3,560	40	17	7.6	201	--	--	--	--	--		58	35	5.4	--	4.0	--	80	32
Mar. 21-31,	15,960	42	10	7.2	116	--	--	--	--	2.8		32	19	2.1	--	3.8	--	46	20
Apr. 1-10,	7,199	49	10	7.4	148	--	--	--	--	3.9		45	23	3.0	--	3.0	--	59	22
Apr. 11-20,	3,310	48	4	7.3	185	--	--	--	--	4.7		57	29	4.2	--	2.9	--	75	28
Apr. 21-30,	3,624	53	3	7.4	193	--	--	--	--	6.3		63	30	4.1	--	2.4	--	77	25
May 1-10,	4,223	60	6	7.4	154	--	--	--	--	6.1		49	25	3.8	--	2.2	--	60	20
May 11-20,	4,815	61	7	7.4	164	--	--	--	--	4.4		52	26	3.8	--	1.9	--	67	24
May 21-31,	5,907	63	5	6.8	143	--	--	--	--	4.7		45	23	3.0	--	1.4	--	56	19
June 1-10,	3,808	71	8	7.0	167	--	--	--	--	5.0		52	25	3.9	--	2.3	--	65	22
June 11-20,	2,121	72	8	7.2	219	--	--	--	--	8.6		68	36	5.6	--	1.9	--	84	28
June 21-30,	1,457	80	8	7.2	267	--	--	--	--	--		82	43	7.0	--	1.4	--	99	45
July 1-10,	1,206	77	8	7.3	292	--	--	--	--	12		88	52	6.4	--	1.5	--	110	38
July 11-20,	1,685	79	10	7.5	271	--	--	--	--	14		85	46	8.1	--	2.1	--	100	30
July 21-31,	1,191	79	10	7.7	307	--	--	--	--	17		91	57	9.9	--	1.0	--	112	37
Aug. 1-10,	835	81	5	7.5	331	--	--	--	--	13		95	62	12	--	.8	--	132	54
Aug. 11-18,	649	79	8	7.4	375	--	--	--	--	22		98	75	15	--	.4	--	132	50
Aug. 19,	2,260	70	30	4.8	59.0	--	--	--	--	6.2		14	14	1	--	5.0	--	18	7
Aug. 20,	6,500	72	15	6.8	127	--	--	--	--	6.0		36	22	4	--	3.7	--	48	18
Aug. 21,	3,830	71	16	7.0	159	--	--	--	--	--		47	18	4	--	4.0	--	62	24
Aug. 22-31,	1,048	77	17	7.6	304	--	--	--	--	--		84	61	9.1	--	1.7	--	106	37
Sept. 1-10,	1,244	75	9	7.8	327	--	--	--	--	--		97	59	11	--	1.4	--	122	42
Sept. 11-20,	2,492	69	10	7.4	279	--	--	--	--	--		80	52	7.1	--	2.5	--	108	42
Sept. 21-30,	1,772	63	8	7.6	263	--	--	--	--	--		76	47	6.9	--	2.6	--	99	37
Average	3,626	57	10	7.2	236	--	--	--	--	11		70	42	7.7	--	2.7	--	90	34

Chemical analyses, in parts per million, water year October 1950 to September 1951

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$	
																		Total	Non-carbonate
Oct. 1-10, 1950----	1905	65	7	7.8	307	--	--	--	--	--	--	84	60	9.1	--	2.8	--	105	36
Oct. 11-20,--------	7854	58	7	7.3	192	--	--	--	--	--	--	60	34	4.2	--	3.7	--	76	27
Oct. 21-31,--------	2206	57	5	7.6	246	--	--	--	--	--	--	80	43	6.8	--	2.5	--	94	28
Nov. 1-10,--------	6150	55	10	7.4	196	--	--	--	--	10		60	32	8.4	--	1.9	--	74	25
Nov. 11-20,--------	3257	45	8	7.6	198	--	--	--	--	8.5		62	32	5.9	--	2.5	--	76	25
Nov. 21-24,26-30,--	22875	42	25	7.4	162	--	--	--	--	--		50	28	9.0	--	2.6	--	60	19
Nov. 25,----------	26500	47	6	6.7	74.5	--	--	--	--	--		15	13	2.0	--	5.4	--	24	12
Dec. 1-10,--------	21268	42	14	7.4	126	5.3	.34	15	4.0	3.1		40	19	3.4	.2	3.4	84	54	21
Dec. 11-20,--------	8810	37	10	7.4	162	--	--	--	--	--		52	25	2.8	--	4.6	--	65	22
Dec. 21-31,--------	3951	34	12	7.4	217	--	--	--	--	--		70	33	4.6	--	5.0	--	90	33
Jan. 1-10, 1951----	8241	35	12	7.4	168	--	--	--	--	--		52	27	3.5	--	4.5	--	66	23
Jan. 11-20,--------	8458	36	8	7.4	158	--	--	--	--	--		49	24	3.2	--	3.3	--	62	22
Jan. 21-31,--------	10610	36	9	7.4	136	--	--	--	--	--		41	20	2.9	--	2.9	--	52	18
Feb. 1-10,--------	9603	34	6	7.5	147	--	--	--	--	--		44	22	2.9	--	2.9	--	58	22
Feb. 11-20,--------	10624	37	7	7.5	142	--	--	--	--	--		44	20	2.9	--	2.8	--	57	21
Feb. 21-28,--------	15390	44	18	7.4	136	--	--	--	--	2.8		41	20	2.6	--	2.6	--	54	20
Mar. 1-10,--------	10114	44	3	7.4	155	--	--	--	--	--		50	24	3.1	--	4.5	--	64	23
Mar. 11-20,--------	7330	44	4	7.5	160	--	--	--	--	--		52	25	3.4	--	4.1	--	66	23
Mar. 21-31,--------	10147	46	4	7.5	163	--	--	--	--	--		51	25	3.9	--	3.9	--	67	25
Apr. 1-10,--------	14566	50	4	7.3	145	--	--	--	--	--		47	22	2.6	--	4.2	--	60	18
Apr. 11-20,--------	10134	50	3	7.5	151	--	--	--	--	--		50	22	3.1	--	3.2	--	63	22
Apr. 21-30,--------	5861	59	4	7.6	178	--	--	--	--	--		62	26	3.6	--	3.4	--	77	26
May 1-10,----------	6120	62	4	7.6	170	--	--	--	--	4.3		56	24	3.4	--	2.2	--	68	22
May 11-20,---------	3413	65	3	8.0	212	--	--	--	--	6.5		75	28	4.8	--	2.2	--	85	24
May 21-31,---------	2449	69	8	7.8	235	--	--	--	--	13		88	33	9.8	--	2.3	--	94	22
June 1-10,---------	1941	75	4	7.7	253	--	--	--	--	7.5		90	37	6.5	--	1.7	--	105	31
June 11-20,--------	13166	67	5	7.7	153	--	--	--	--	3.2		50	23	3.0	--	2.3	--	64	23
June 21-30,--------	3363	76	5	7.8	208	--	--	--	--	6.6		71	31	4.5	--	2.0	--	84	26
July 1-10,---------	2805	77	5	7.8	233	--	--	--	--	5.9		82	35	4.1	--	1.7	--	98	31
July 11-19,--------	2340	82	4	7.9	257	--	--	--	--	8.9		89	41	6.0	--	1.4	--	106	33
July 22-28,30,31,--	2424	82	4	8.0	257	--	--	--	--	8.9		86	40	6.5	--	2.6	--	104	34
Aug. 1,2,4-8,------	1365	81	4	8.1	300	---	--	--	--	14		95	54	8.1	--	1.8	--	116	38
Aug. 11-20,--------	1274	82	5	8.2	325	--	--	--	--	18		102	56	9.5	--	2.0	--	118	34
Aug. 21-31,--------	800	80	4	8.1	363	--	--	--	--	22		112	69	12	--	1.1	--	133	41
Sept. 1-10,--------	933	76	5	7.9	361	--	--	--	--	18		120	60	13	--	2.1	--	142	44
Sept. 11-20,-------	787	76	6	8.1	383	--	--	--	--	18		116	65	13	--	1.4	--	144	49
Sept. 21-30,-------	642	70	5	8.1	402	2.8	.03	38	14	21		121	73	15	.0	1.2	246	152	53
Average---------	6625	57	7	7.6	212	--	--	--	--	--		68	34	5.8	--	2.8	--	83	27

RAYSTOWN BRANCH JUNIATA RIVER AT HAWN BRIDGE NEAR HUNTINGDON, PENNSYLVANIA

Chemical analyses, in parts per million, water year October 1949 to September 1950

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$	
																		Total	Non-carbonate
Oct. 1-10, 1949	171	64	5	6.5	275	2.1	.04	33	12	2.9		94	50	4.6	.1	2.8	170	132	55
Oct. 11-20,	191	64	5	7.5	285	---	--	--	--	---		95	51	3.5	--	2.4	---	132	54
Oct. 21-31,	232	58	5	7.6	282	---	--	--	--	---		100	50	3.5	--	1.7	---	128	47
Nov. 1-10,	263	52	5	7.3	278	---	--	--	--	---		97	49	3.9	--	2.0	---	128	48
Nov. 11-20,	224	47	5	7.3	265	---	--	--	--	---		94	45	4.2	--	2.3	---	120	42
Nov. 21-30,	241	44	5	7.3	248	---	--	--	--	---		85	41	4.9	--	2.6	---	112	42
Dec. 1-10,	486	36	7	7.3	232	---	--	--	--	---		77	41	4.5	--	2.7	---	105	42
Dec. 11-20,	1,081	34	8	7.1	167	---	--	--	--	---		49	29	3.8	--	4.4	---	72	32
Dec. 21-31,	1,507	37	10	6.9	133	---	--	--	--	---		35	25	2.4	--	4.4	---	54	25
Jan. 1-10, 1950	2,246	41	8	6.9	109	---	--	--	--	---		26	21	1.9	--	3.9	---	42	21
Jan. 11-20,	1,639	38	8	6.9	118	---	--	--	--	---		28	24	2.1	--	3.7	---	46	23
Jan. 21-31,	720	38	10	7.2	157	---	--	--	--	---		41	31	2.5	--	3.9	---	64	30
Feb. 1-10,	2,230	38	12	7.1	120	---	--	--	--	--		33	23	4.8	--	3.8	---	48	21
Feb. 11-20,	4,297	39	17	7.2	97.0	---	--	--	--	---		20	21	3.5	.1	3.4	---	38	22
Feb. 21-28,	1,310	34	4	7.2	137	---	--	--	--	---		34	27	1.9	--	4.2	---	56	28
Mar. 1-10,	695	34	6	7.4	166	---	--	--	--	---		46	32	2.1	--	3.8	---	72	34
Mar. 11-20,	1,049	37	3	7.2	164	---	--	--	--	---		48	31	2.0	--	4.3	---	71	32
Mar. 21-31,	4,185	38	6	6.8	94.3	---	--	--	--	---		21	19	1.8	--	3.6	---	36	19
Apr. 1-10,	1,601	46	1	7.1	124	---	--	--	--	---		32	23	1.8	--	3.1	---	51	25
Apr. 11-20,	708	48	4	7.2	156	---	--	--	--	---		45	28	2.2	--	2.8	---	67	30
Apr. 21-30,	1,280	53	6	7.2	160	---	--	--	--	---		48	28	2.0	--	2.8	---	67	28
May 2-10,	1,269	56	6	7.2	128	---	--	--	--	---		38	23	2.1	--	2.3	---	53	22
May 11-20,	1,783	65	14	7.2	124	---	--	--	--	---		36	23	1.9	--	1.7	---	51	22
May 21-31,	1,589	66	16	7.1	111	---	--	--	--	---		28	22	1.8	--	2.1	---	45	22
June 1-10,	693	72	7	6.8	150	---	--	--	--	---		40	28	2.0	--	2.7	---	58	25
June 11-20,	376	75	8	6.9	174	---	--	--	--	---		53	32	2.1	--	2.4	---	72	29
June 21-30,	291	77	4	7.0	198	---	--	--	--	---		62	39	2.1	--	2.5	---	85	34
July 1-10,	277	78	5	7.0	215	---	--	--	--	---		70	43	2.4	--	2.2	---	94	37
July 11-20,	326	78	6	7.1	227	---	--	--	--	---		73	45	2.4	--	2.4	---	98	38
July 21-31,	213	80	4	7.2	238	---	--	--	--	---		78	47	2.6	--	2.3	---	104	40
Aug. 1-10,	152	81	12	7.5	237	---	--	--	--	---		78	44	2.8	--	2.6	---	105	41
Aug. 11-20,	178	78	4	7.4	260	---	--	--	--	---		80	49	2.6	--	2.2	---	116	50
Aug. 21-31,	128	76	4	7.3	268	---	--	--	--	---		86	52	2.5	--	1.9	---	122	52
Sept. 1-10,	273	76	3	7.3	253	---	--	--	--	---		80	53	2.6	--	1.6	---	120	54
Sept. 11-20,	968	68	7	7.2	198	---	--	--	--	---		61	37	2.5	--	3.0	---	88	38
Sept. 21-30,	701	61	8	7.3	179	---	--	--	--	---		55	26	2.5	--	3.8	---	74	29
Average	991	56	6	7.2	187	---	--	--	--	---		57	34	2.7	--	2.9	---	81	34

Chemical analyses, in parts per million, water year October 1949 to September 1950

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$	
																		Total	Non-carbonate
Oct. 1-10, 1949---	72	58	6	7.6	373	7.6	.12	47	13	8.1		178	22	7.4	.1	11	223	171	25
Oct. 11-20,-------	60	54	6	7.7	387	7.1	---	---	---	---		192	21	7.2	---	11	---	180	23
Oct. 21-31,-------	73	51	7	7.8	380	5.8	---	---	---	---		190	22	7.5	---	7.1	---	182	26
Nov. 1-10,-------	80	49	6	8.1	357	---	---	---	---	---		185a/	28	7.4	---	9.8	---	154	15
Nov. 11-20,------	78	51	8	8.1	365	---	---	---	---	---		174b/	27	7.2	---	11	---	168	26
Nov. 21-30,-------	66	41	6	8.0	359	---	---	---	---	---		171b/	25	7.0	---	14	---	168	28
Dec. 1-10,-------	75	40	10	7.8	345	---	---	---	---	---		157	20	6.6	---	13	---	158	29
Dec. 11-20,------	176	38	10	7.4	302	---	---	---	---	---		116	25	6.9	---	12	---	134	37
Dec. 21-31,------	303	48	10	7.4	285	---	---	---	---	---		111	30	6.5	---	12	---	127	36
Jan. 1-10, 1950---	212	44	10	7.6	311	---	---	---	---	---		126	28	6.1	---	13	---	141	38
Jan. 11-20,------	241	40	10	7.8	299	---	---	---	---	---		123	28	5.8	---	12	---	136	35
Jan. 21-31,------	174	46	8	7.6	335	---	---	---	---	---		150	25	6.5	---	16	---	158	35
Feb. 1-10,-------	527	40	18	7.5	279	---	---	---	---	---		112	27	5.8	---	15	---	126	34
Feb. 11-20,------	874	42	18	7.5	274	---	---	---	---	---		107	26	5.4	---	16	---	123	35
Feb. 21-28,------	450	37	8	7.8	334	---	---	---	---	---		145	24	5.9	---	22	---	157	38
Mar. 1-10,-------	355	38	8	7.8	342	---	---	---	---	---		154	24	6.4	---	21	---	162	36
Mar. 11-20,------	387	42	4	7.7	298	---	---	---	---	---		131	24	5.5	---	16	---	141	34
Mar. 21,22,24-31,-	1,158	46	6	7.7	264	9.6	.04	35	10	2.8		110	23	4.6	.1	17	---	128	38
Mar. 23,---------	3,930	39	30	6.3	154	---	---	---	---	---		48	28	3.0	---	12	---	68	29
Apr. 1-10,-------	641	49	4	7.6	312	---	---	---	---	---		141	23	5.0	---	20	---	150	34
Apr. 11-20,------	412	50	4	7.8	325	---	---	---	---	---		151	22	5.8	---	20	---	159	35
Apr. 21-30,------	359	54	3	7.7	322	---	---	---	---	---		150	23	5.8	---	17	---	153	30
May 1-10,--------	351	58	4	7.7	301	---	---	---	---	---		138	22	5.2	---	14	---	142	29
May 11-20,-------	502	60	6	7.5	286	---	---	---	---	---		131	19	4.2	---	12	---	132	25
May 21-31,-------	715	61	9	7.3	242	---	---	---	---	---		106	18	3.6	---	9	---	109	22
June 1-10,-------	734	66	15	7.3	260	---	---	---	---	---		125	19	5.2	---	13	---	115	13
June 11-20,------	366	66	12	7.5	318	---	---	---	---	---		157	20	5.8	---	16	---	142	13
June 21-30,------	253	70	8	7.4	338	---	---	---	---	---		165	20	6.2	---	17	---	157	22
July 1-10,-------	224	71	10	7.4	345	---	---	---	---	---		166	20	6.2	---	16	---	157	21
July 11-20,------	358	71	15	7.4	314	---	---	---	---	---		145	20	5.8	---	16	---	142	23
July 21-31,------	169	72	10	7.7	368	---	---	---	---	---		175	20	6.4	---	18	---	172	29
Aug. 1-10,-------	130	74	6	7.6	380	---	---	---	---	---		181	21	5.8	---	16	---	177	29
Aug. 11-20,------	112	73	4	7.7	378	---	---	---	---	---		180	22	6.5	---	16	---	177	30
Aug. 21-31,------	98	74	4	7.7	383	---	---	---	---	---		184	22	6.1	---	15	---	180	29
Sept. 1-10,------	106	71	8	7.6	360	---	---	---	---	---		175	23	6.4	---	14	---	171	28
Sept. 11-20,-----	317	65	8	7.4	257	---	---	---	---	---		104	25	4.5	---	10	---	114	29
Sept. 21-30,-----	121	58	8	7.7	364	---	---	---	---	---		165	24	6.1	---	16	---	171	36
Average------	338	54	9	7.2	324	---	---	---	---	---		146	23	5.9	---	14	---	148	28

a/ HCO_3 contains 7 ppm CO_3
b/ HCO_3 contains 5 ppm CO_3

ALLEGHENY RIVER NEAR WARREN, PA.

Chemical analyses, in parts per million, water year October 1949 to September 1950

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromnos at 25°C.)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$	
																		Total	Non-carbonate
Oct. 1-10, 1949	370	64	5	7.3	793	2.9	--	--	--	84		75	30	172	--	.8	--	153	92
Oct. 11-20,	333	58	5	7.7	846	2.3	--	--	--	89		78	31	185	--	1.0	--	164	100
Oct. 21-31,	321	52	5	7.5	806	1.9	.15	49	12	76		80	30	170	.1	1.0	456	172	106
Nov. 1-10,	340	46	5	7.5	864	5.0	--	--	--	93		80	30	195	--	1.1	--	170	104
Nov. 11-20,	620	44	5	7.5	778	2.9	--	--	--	86		76	29	175	--	.8	--	153	91
Nov. 21-30,	1,208	34	5	7.3	565	3.6	--	--	--	60		58	28	118	--	1.2	--	113	65
Dec. 1-10,	1,473	33	8	6.9	433	--	--	--	--	--		42	21	92	--	1.9	--	92	58
Dec. 11-20,	5,972	34	20	6.6	227	--	--	--	--	--		23	16	43	--	2.0	--	52	33
Dec. 21-31,	4,770	42	13	6.7	229	--	--	--	--	--		20	15	46	--	1.7	--	54	38
Jan. 1-10, 1950	8,781	39	21	7.2	186	--	--	--	--	--		23	15	32	--	1.7	--	44	25
Jan. 11-20,	10,901	36	17	6.8	144	4.8	.04	11	2.8	11		16	13	24	.1	1.7	82	39	26
Jan. 21-31,	6,250	39	8	7.0	195	--	--	--	--	--		22	15	36	--	1.6	--	46	28
Feb. 1-10,	3,020	34	8	7.0	261	--	--	--	--	--		30	16	50	--	1.7	--	60	35
Feb. 11-20,	5,219	35	8	6.9	207	--	--	--	--	--		23	15	38	--	1.4	--	46	27
Feb. 21-28,	3,063	32	8	7.3	247	--	--	--	--	--		28	16	47	--	1.4	--	57	34
Mar. 1-10,	3,775	33	9	7.1	263	--	--	--	--	--		30	17	51	--	1.3	--	60	35
Mar. 11-15, 17-20,	4,920	34	3	6.8	214	--	--	--	--	20		27	15	38	--	1.6	--	49	27
Mar. 16,	3,760	35	3	3.40	348	--	--	--	--	30		--	59	40	--	1.7	--	53	53
Mar. 21, 22,	4,165	38	4	7.0	247	--	--	--	--	23		30	15	46	--	1.6	--	57	32
Mar. 23-27,	7,770	38	4	6.7	165	--	--	--	--	15		22	14	28	--	1.6	--	40	22
Mar. 28-31,	29,550	38	17	6.4	85.8	3.9	.10	6.9	1.8	8.9		12	12	14	.1	2.0	63	25	15
Apr. 1-10,	22,470	42	7	6.5	102	--	--	--	--	8.4		15	11	15	--	1.7	--	28	16
Apr. 11-20,	5,262	43	4	7.0	187	--	--	--	--	16		27	13	31	--	1.5	--	46	24
Apr. 21-30,	5,578	46	4	7.0	184	--	--	--	--	17		24	12	33	--	.5	--	42	22
May 1-10,	5,589	55	3	6.9	180	--	--	--	--	16		26	11	32	--	.6	--	44	23
May 11-20,	4,639	56	3	6.9	215	--	--	--	--	20		28	12	39	--	.6	--	48	25
May 21-31,	3,030	63	3	7.1	244	--	--	--	--	23		35	11	46	--	.5	--	55	26
June 1-10,	2,950	64	4	7.1	259	--	--	--	--	25		36	12	49	--	.5	--	58	28
June 11-20,	1,533	67	8	7.0	368	--	--	--	--	38		44	15	74	--	.5	--	74	38
June 21-30,	755	72	7	7.1	495	--	--	--	--	53		64	18	102	--	.7	--	101	49
July 1-10,	787	71	16	7.1	539	--	--	--	--	60		63	18	117	--	.7	--	106	54
July 11-20,	999	71	16	7.1	554	--	--	--	--	63		56	18	125	--	.5	--	104	58
July 21-31,	1,793	70	13	7.3	382	--	--	--	--	44		49	15	81	--	.6	--	74	34
Aug. 1-10,	827	73	9	7.3	481	--	--	--	--	49		52	16	103	--	.4	--	99	56
Aug. 11-20,	442	74	8	7.5	674	--	--	--	--	72		70	21	152	--	.2	--	137	80
Aug. 21-31,	496	74	9	7.4	698	--	--	--	--	75		63	20	161	--	.3	--	136	84
Sept. 1-10,	1,050	70	10	7.4	515	--	--	--	--	53		54	18	111	--	.7	--	104	60
Sept. 11-20,	1,193	62	5	7.3	447	--	--	--	--	--		44	17	99	--	.2	--	86	50
Sept. 21-30,	574	57	4	7.7	565	--	--	--	--	--		60	18	125	--	.1	--	111	62
Average	3,802	50	8	7.0	390	--	--	--	--	40		43	19	80	--	1.1	--	81	46

Chemical analyses, in parts per million, water year October 1950 to September 1951

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$	
																		Total	Non-carbonate
Oct. 1-10, 1950	471	59	4	7.6	722	3.4	.04	45	8.6	78		68	21	170	.2	.0	406	148	92
Oct. 11,	4120	61	9	7.6	632	--	--	--	--	--		66	23	140	--	.1	--	114	60
Oct. 12-20,	3776	56	6	7.2	272	--	--	--	--	--		30	16	30	--	.5	--	55	30
Oct. 21-31,	1121	51	4	7.7	448	--	--	--	--	--		48	17	99	--	.1	--	89	50
Nov. 1-5,	3668	53	3	7.8	489	--	--	--	--	--		54	18	105	--	.1	--	96	52
Nov. 6-10,	9392	46	9	7.2	166	--	--	--	--	--		18	14	30	--	.6	--	38	23
Nov. 11-20,	3638	41	5	7.3	241	--	--	--	--	--		28	14	40	--	.3	--	52	29
Nov. 21-30,	18763	36	22	6.9	119	--	--	--	--	--		12	14	18	--	.2	--	28	18
Dec. 1-10,	14500	36	7	6.5	117	5.0	.10	10	2.8	7.0		18	12	17	.1	.3	75	36	22
Dec. 11-20,	4813	33	6	6.9	210	--	--	--	--	--		30	13	37	--	.3	--	50	25
Dec. 21-31,	2023	32	4	7.0	316	--	--	--	--	--		45	15	63	--	.6	--	74	37
Jan. 1-2, 1951	2100	32	5	7.3	352	--	--	--	--	--		46	24	73	--	.8	--	78	40
Jan. 3-10,	1206	34	8	6.8	137	--	--	--	--	--		17	12	23	--	.4	--	34	20
Jan. 11-20,	5497	33	4	7.0	202	--	--	--	--	--		28	13	37	--	.2	--	48	25
Jan. 21-31,	7923	33	3	7.3	162	--	--	--	--	15		21	12	28	--	1.4	--	38	21
Feb. 1-10,	2920	32	4	7.4	238	--	--	--	--	24		29	13	47	--	1.4	--	52	28
Feb. 11-13,	4267	32	3	7.8	252	--	--	--	--	24		31	14	48	--	1.2	--	56	31
Feb. 14-20,	8607	35	4	7.5	143	--	--	--	--	10		18	12	20	--	1.6	--	35	20
Feb. 21-28,	12596	37	6	7.5	124	--	--	--	--	11		17	11	19	--	1.2	--	30	16
Mar. 1-10,	13080	38	5	7.3	113	--	--	--	--	9.2		13	11	17	--	1.1	--	27	16
Mar. 11-20,	5834	37	1	7.1	176	--	--	--	--	15		24	12	28	--	1.1	--	41	21
Mar. 21-30,	6005	39	7	7.2	179	--	--	--	--	17		22	12	31	--	1.1	--	39	21
Mar. 31,	21000	43	16	6.0	97.2	--	--	--	--	13		10	9.5	13	--	1.5	--	10	2
Apr. 1-3,	20133	43	15	7.0	93.2	--	--	--	--	8.0		12	11	13	--	1.0	--	23	13
Apr. 4-9,	8617	45	4	7.2	144	--	--	--	--	13		19	12	23	--	1.0	--	34	18
Apr. 10,	4740	49	3	7.1	205	--	--	--	--	16		28	14	31	--	1.0	--	48	25
Apr. 11-20,	7115	43	6	7.3	165	--	--	--	--	13		22	12	27	--	.8	--	40	22
Apr. 21-30,	6312	50	5	7.4	167	--	--	--	--	15		23	12	28	--	.7	--	39	20
May 1-10,	3054	57	4	7.7	242	3.1	.11	18	4.0	21		38	13	44	--	.5	--	61	30
May 11-20,	2296	62	2	7.7	276	4.6	.06	20	4.5	28		42	14	56	--	.5	--	68	34
May 21-31,	1502	65	4	7.4	359	--	--	--	--	36		42	15	75	--	.4	--	76	44
June 1-10,	1828	66	3	7.5	356	--	--	--	--	38		44	14	77	--	.5	--	76	40
June 11-20,	4419	63	6	7.6	198	--	--	--	--	15		26	13	30	--	1.1	--	46	25
June 21-30,	1876	72	4	7.5	308	--	--	--	--	22		38	14	50	--	.6	--	68	37
July 1,	3550	65	7	7.4	332	--	--	--	--	37		38	18	68	--	.3	--	66	35
July 2-10,	4731	67	7	7.4	190	6.7	.04	13	3.0	15		23	11	32	.1	1.8	115	45	26
July 11-20,	2307	73	4	7.7	273	--	--	--	--	26		42	13	52	--	.8	--	65	31
July 21-31,	902	75	4	7.9	442	--	--	--	--	44		54	16	91	--	.6	--	94	50
Aug. 1-10,	516	74	6	7.7	563	--	--	--	--	57		70	18	119	--	.5	--	120	63
Aug. 11-20,	410	75	3	7.9	672	--	--	--	--	73		74	21	153	--	.8	--	140	79
Aug. 21-31,	300	73	8	7.9	760	--	--	--	--	80		78	23	171	--	.2	--	156	92
Sept. 1-10,	356	68	3	7.6	811	3.1	.03	49	9.7	102		77	23	210	.1	.6	466	162	99
Sept. 11-14, 16-20	509	68	4	7.4	783	--	--	--	--	90		68	26	190	--	.7	--	155	99
Sept. 15,	863	69		6.7	409	--	--	--	--	38		71	21	73	--	2.6	--	102	44
Sept. 21-30,	345	63	3	7.9	770q	--	--	--	--	99		72	23	181	--	1.2	--	156	97
Average	4901	51	6	7.4	321	--	--	--	--	34		38	15	65	--	.8	--	69	38

ALLEGHENY RIVER AT KITTANNING, PA.

Chemical analyses, in parts per million, water year October 1949 to September 1950

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$	
																		Total	Non-carbonate
Oct. 1-10, 1949	2,247	61	5	7.0	413	--	--	--	--	--	--	68	49	60	--	.4	--	112	56
Oct. 11-20,	1,829	62	5	7.1	397	--	--	--	--	--	--	74	51	42	--	.5	--	110	49
Oct. 21-31,	1,473	58	10	7.0	411	--	--	--	--	--	--	74	51	52	--	.8	--	116	55
Nov. 1-10,	1,443	52	7	7.1	431	--	--	--	--	--	--	76	55	54	--	.6	--	122	60
Nov. 11-20,	2,305	48	5	7.2	457	--	--	--	--	--	--	78	57	60	--	.3	--	128	64
Nov. 21-30,	4,944	41	5	7.1	401	--	--	--	--	--	--	72	42	57	--	.7	--	112	53
Dec. 1-10,	8,048	37	10	6.9	283	--	--	--	--	--	--	46	41	32	--	1.3	--	84	46
Dec. 11-14,	18,078	35	20	7.1	328	--	--	--	--	--	--	40	46	46	--	1.4	--	106	73
Dec. 15-20,	20,700	35	15	7.3	203	--	--	--	--	--	--	24	36	22	--	1.6	--	62	42
Dec. 21-31,	19,882	36	10	7.1	182	--	--	--	--	--	--	27	36	18	--	1.5	--	58	36
Jan. 1-10, 1950	40,580	39	10	6.9	159	--	--	--	--	--	--	20	32	14	--	1.6	--	50	34
Jan. 11-20,	51,780	38	20	6.8	124	--	--	--	--	5.9		12	27	10	--	1.0	--	40	30
Jan. 21-31,	29,818	38	25	6.9	146	--	--	--	--	6.5		17	33	12	--	1.2	--	52	38
Feb. 1-10,	16,570	38	1	7.0	180	--	--	--	--	--		20	39	14	--	1.6	--	60	44
Feb. 11-20,	45,530	37	5	6.6	141	--	--	--	--	--		16	33	10	--	1.5	--	51	38
Feb. 21-28,	27,163	36	1	6.7	144	--	--	--	--	--		14	34	9.0	--	1.4	--	51	39
Mar. 1-10,	18,815	34	3	6.9	176	--	--	--	--	--		23	37	14	--	1.5	--	58	39
Mar. 11-20,	27,680	35	7	6.8	143	--	--	--	--	--		18	31	12	--	1.4	--	49	34
Mar. 21-31,	57,691	39	5	6.7	130	--	--	--	--	--		16	30	9.0	--	1.1	--	45	32
Apr. 1-10,	64,880	43	5	6.7	98.0	--	--	--	--	--		14	20	7.0	--	1.4	--	37	26
Apr. 11-20,	19,570	43	5	6.9	148	--	--	--	--	--		22	29	11	--	1.6	--	58	40
Apr. 21-30,	23,530	48	5	7.0	165	--	--	--	--	--		24	32	15	--	1.6	--	66	46
May 1-10,	22,210	54	5	7.1	147	--	--	--	--	--		26	30	12	--	.8	--	57	36
May 11-20,	16,600	58	5	7.1	164	--	--	--	--	--		25	28	16	--	.7	--	57	36
May 21-31,	12,660	61	5	7.2	178	--	--	--	--	--		26	31	18	--	.6	--	64	43
June 1-10,	16,727	65	15	6.9	178	--	--	--	--	--		27	29	17	--	1.1	--	56	34
June 11-20,	9,746	67	5	6.9	185	--	--	--	--	--		26	31	17	--	.9	--	62	41
June 21-30,	4,297	70	5	6.9	236	--	--	--	--	--		31	43	24	--	.8	--	71	46
July 1-10,	4,338	73	10	6.9	276	--	--	--	--	--		39	48	30	--	1.1	--	85	53
July 11-20,	4,318	73	10	7.0	295	--	--	--	--	--		42	46	36	--	.8	--	89	55
July 21-31,	9,820	74	10	7.1	250	--	--	--	--	--		39	36	29	--	1.0	--	77	45
Aug. 1-10,	5,972	74	10	7.2	223	--	--	--	--	--		35	35	23	--	.6	--	69	40
Aug. 11-20,	2,921	73	2	7.1	254	--	--	--	--	18		44	38	27	--	.5	--	75	39
Aug. 21-31,	3,743	73	2	6.8	285	--	--	--	--	19		36	52	28	--	.5	--	83	54
Sept. 1-10,	7,546	72	5	6.8	266	--	--	--	--	19		42	37	32	--	.7	--	78	44
Sept. 11-20,	7,627	69	3	6.9	254	--	--	--	--	17		39	41	26	--	.6	--	75	43
Sept. 21-30,	3,993	61	5	7.0	233	--	--	--	--	15		40	36	24	--	.6	--	71	38
Average	17,110	52	8	7.0	235	--	--	--	--	15		35	38	25	--	1.0	--	73	44

Chemical analyses, in parts per million, watar year October 1950 to September 1951

Data of collaction	Mean dis-charga (sacond-faat)	Tam-para-ture (°F.)	Color	pH	Spacific conduct-anca (Micromhos at 25°C.)	Silica (SiO_2)	Iron (Fa)	Cal-cium (Ca)	Mag-na-sium (Mg)	So-dium (Na)	Po-tas-sium (K)	Bicar-bonate (HCO_3)	Sul-fata (SO_4)	Chlo-rida (Cl)	Fluo-rida (F)	Ni-trata (NO_3)	Dis-solvad solids	Hardnass as $CaCO_3$	
																		Total	Non-carbon-ate
Oct. 1-10, 1950----	2220	60	10	7.2	259	--	--	--	--	19		47	40	30	--	.4	--	81	42
Oct. 11-15,--------	13428	58	10	7.0	308	--	--	--	--	24		47	48	40	--	.4	--	92	54
Oct. 16-20,--------	12408	54	10	7.0	185	--	--	--	--	13		34	30	19	--	.7	--	58	30
Oct. 21-31,--------	5147	55	10	7.0	212	--	--	--	--	15		40	32	23	--	.4	--	66	33
Nov. 1-10,---------	22314	53	10	6.9	212	--	--	--	--	15		33	38	22	--	.5	--	65	38
Nov. 11-20,--------	15930	43	10	6.9	164	--	--	--	--	11		25	31	16	--	.8	--	53	32
Nov. 21-30,--------	53630	38	4	6.8	123	--	--	--	--	--		18	25	11	--	1.1	--	45	30
Dec. 1-10,---------	67090	36	4	6.8	112	--	--	--	--	--		15	24	8	--	1.3	--	36	24
Dec. 11-20,--------	23350	35	1	7.1	153	--	--	--	--	8.5		20	32	12	--	1.1	--	49	33
Dec. 21-31,--------	8887	33	1	7.2	210	--	--	--	--	13		31	42	18	--	1.4	--	68	43
Jan. 1-4, 1951-----	25670	33	1	7.3	226	--	--	--	--	13		30	47	18	--	1.4	--	71	46
Jan. 5-10,---------	59717	35	5	6.9	115	--	--	--	--	6.2		13	24	9	--	1.4	--	36	25
Jan. 11-20,--------	29260	34	1	6.9	147	--	--	--	--	6.7		17	34	10	--	1.5	--	50	36
Jan. 21-31,--------	35191	36	10	6.9	128	--	--	--	--	--		18	30	9	--	.2	--	40	25
Feb. 1-10,---------	18460	33	10	6.9	163	--	--	--	--	--		18	40	12	--	.3	--	53	38
Feb. 11-20,--------	40110	34	10	7.0	140	--	--	--	--	--		18	31	12	--	.3	--	45	30
Feb. 21-28,--------	53537	37	12	6.9	110	--	--	--	--	--		15	25	7	--	.2	--	34	22
Mar. 1-10,---------	53750	40	10	6.5	106	--	--	--	--	5.1		14	22	7	--	1.0	--	34	23
Mar. 11-20,--------	24540	40	10	6.7	134	--	--	--	--	5.8		19	24	10	--	1.1	--	43	27
Mar. 21-31,--------	27736	39	10	6.9	144	--	--	--	--	5.9		20	26	11	--	1.0	--	47	31
Apr. 1-10,---------	41910	45	10	6.7	113	--	--	--	--	4.6		15	23	7	--	1.2	--	37	25
Apr. 11-20,--------	32900	45	10	6.7	134	--	--	--	--	6.0		18	28	8	--	1.1	--	43	28
Apr. 21-30,--------	28480	50	7	6.9	141	--	--	--	--	8.3		19	30	9	--	.7	--	42	26
May 1-10,----------	16252	58	7	6.9	159	--	--	--	--	8.9		22	34	11	--	.6	--	50	32
May 11-20,---------	11776	60	6	7.1	194	--	--	--	--	11		32	35	16	--	.5	--	62	36
May 21-31,---------	8664	64	5	7.1	208	--	--	--	--	11		29	39	17	--	.6	--	64	40
June 1-10,---------	8615	67	5	7.2	219	--	--	--	--	10		25	35	23	--	.5	--	68	48
June 11-20,--------	18020	67	5	7.1	175	--	--	--	--	8.3		21	31	17	--	.7	--	56	39
June 21-30,--------	6913	73	5	7.1	190	--	--	--	--	11		27	33	18	--	.6	--	58	36
July 1-10,---------	15070	72	15	7.1	192	--	--	--	--	11		28	29	21	--	.7	--	60	37
July 11-20,--------	6974	75	7	7.0	179	--	--	--	--	9.5		32	26	19	--	.8	--	60	34
July 21-31,--------	3732	77	6	7.1	237	--	--	--	--	15		36	36	26	--	.6	--	72	42
Aug. 1-10,---------	2345	77	7	7.1	281	--	--	--	--	18		44	44	31	--	.7	--	88	52
Aug. 11-20,--------	1602	76	5	7.3	316	--	--	--	--	20		46	48	37	--	.5	--	97	59
Aug. 21-31,--------	1261	74	5	7.4	366	--	--	--	--	--		56	57	47	--	.5	--	102	56
Sept. 1-10,--------	1285	73	8	7.1	379	--	--	--	--	--		57	64	50	--	.5	--	106	59
Sept. 11-20,-------	2157	71	5	7.4	422	--	--	--	--	--		28	67	56	--	.7	--	116	93
Sapt. 21-30,-------	1374	67	7	7.5	439	--	--	--	--	--		27	66	60	--	.3	--	122	100
Average---------	20490	53	7	7.0	202	--	--	--	--	--		28	36	20	--	.7	--	62	40

Cross-section samples for water year ended September 30, 1951

Date	Discharge (second-feet)	Station	Time	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Parts per million: Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Total hardness as $CaCO_3$
Oct. 13,1950		800	7:50am	58	1	4.8	518	2	196	25	.9	186
		600	7:45	57	1	4.6	551	1	217	24	1.1	190
		410	7:45	57	1	4.30	577	0	225	23	1.0	198
		250	7:40	58	1	4.5	559	0	212	23	.4	194
		100	7:35	58	1	4.7	528	1	197	24	.7	192
Nov. 14,----		800	8:55am	43	3	5.8	196	10	46	12	1.8	61
		600	9:00	43	3	6.1	193	7	47	13	1.7	60
		410	9:10	43	3	5.8	188	8	48	13	1.6	60
		250	9:15	43	4	6.0	186	9	49	12	1.7	58
		100	4:55pm	43	3	5.9	191	10	46	13	1.5	59
Dec. 13,----		800	7:20am	32	2	4.7	205	1	70	8	1.3	65
		600	7:15	32	2	4.40	206	0	68	8	1.0	62
		410	7:10	32	2	5.8	184	6	58	7	1.5	60
		250	7:05	32	3	5.3	167	3	53	7	1.2	55
		100	7:00	33	3	5.6	164	5	49	7	1.3	52
Jan. 17,1951		800	8:40am	35	2	4.8	188	2	59	8	2.1	62
		600	8:45	35	1	4.7	185	1	56	8	2.2	61
		410	8:50	35	1	5.5	175	2	52	9	2.0	58
		250	8:55	35	1	5.8	170	5	49	9	2.0	55
		100	9:00	35	1	6.1	173	9	47	9	2.0	56
Feb. 21,----		800	7:15am	39	1	6.3	168	6	52	9	1.8	56
		600	7:20	38	1	6.1	165	8	50	8	1.6	54
		410	7:23	38	1	6.2	154	9	45	8	1.6	51
		250	7:25	38	5	6.4	151	13	40	8	1.7	50
		100	7:30	38	3	6.3	146	10	40	8	1.8	49
Mar. 14,----		800	8:45am	38	4	4.6	201	1	63	9	1.4	57
		600	8:50	38	5	4.9	185	2	59	10	1.1	55
		410	8:53	38	6	5.3	170	3	61	7	1.3	52
		250	8:58	39	4	5.8	161	7	49	9	1.3	48
		100	8:59	39	5	6.2	158	9	44	6	1.4	45
Apr. 20,----		800	9:15am	45	5	5.6	185	4	59	15	2.2	68
		600	9:20	44	5	5.8	176	4	55	15	1.4	64
		410	9:25	44	5	6.1	169	8	52	15	1.3	62
		250	9:30	44	5	6.3	158	9	47	15	1.6	54
		100	9:35	46	5	6.6	159	11	43	16	1.7	54
May 15,-----		800	11:15am	63	5	6.0	259	6	83	7	2.1	92
		600	11:20	62	5	6.2	252	7	80	8	1.8	92
		410	11:25	62	5	6.4	248	8	78	8	1.1	90
		250	11:25	62	5	6.4	248	9	78	7	1.3	90
		100	11:30	62	5	6.2	248	8	81	8	1.7	92
June 27,----		800	7:40am	76	3	4.10	337	0	112	15	.7	70
		600	7:45	76	4	4.20	330	0	103	14	.8	74
		410	7:50	76	1	4.25	336	0	112	14	1.6	68
		250	7:55	76	2	4.25	337	0	112	13	1.8	72
		100	7:55	76	3	4.10	330	0	115	12	1.3	72
July 16,----		800	7:00am	77	4	5.3	292	3	100	15	.4	76
		600	6:55	77	3	5.5	291	4	105	16	.5	68
		410	6:50	76	2	5.5	287	4	103	14	.5	70
		250	6:45	77	2	5.2	289	3	100	16	.7	70
		100	6:40	77	1	5.2	295	4	110	14	.7	86
Aug. 20,----		800	10:00am	80	1	4.8	549	2	202	30	.6	98
		600	10:05	80	2	4.8	548	2	202	29	.7	94
		410	10:10	80	3	4.8	549	2	208	29	.7	102
		250	10:15	80	1	4.8	548	2	208	26	.7	105
		100	10:20	80	3	4.7	548	1	200	32	.6	112
Sept. 12,----		800	7:30am	75	1	4.6	679	1	248	36	.8	216
		600	7:37	75	1	4.7	676	2	252	36	.6	216
		410	7:50	75	1	4.7	675	2	238	38	.7	224
		250	8:00	76	1	4.7	675	1	245	38	.6	220
		100	8:05	75	1	4.6	680	1	250	38	.6	216

Chamical analysas, in parts per million, water year October 1949 to September 1950

Data of collaction	Maan dis-charga (sacond-faat)	Tam-pera-ture (°F.)	Color	pH	Spacific conduct-ance (Micromhos at 25°C.)	Silica (SiO_2)	Iron (Fa)	Cal-cium (Ca)	Mag-na-sium (Mg)	So-dium (Na)	Po-tas-sium (K)	Bicar-bonata (HCO_3)	Sul-fate (SO_4)	Chlo-rida (Cl)	Fluo-ride (F)	Ni-trata (NO_3)	Dis-solvad solids	Hardnass as $CaCO_3$	
																		Total	Non-carbon-ata
Oct. 1-10, 1949	5,608	69	5	5.6	536	--	--	--	--	--		5	179	35	--	4.4	--	153	149
Oct. 11-20,	6,065	69	5	5.9	535	--	--	--	--	--		6	178	35	--	4.0	--	155	150
Oct. 21-31,	5,243	62	5	4.40	596	--	--	--	--	--		0	207	31	--	4.7	--	163	163
Nov. 1-10,	13,704	54	1	4.6	461	--	--	--	--	--		2	166	18	--	2.2	--	136	134
Nov. 11-20,	8,962	53	3	4.8	401	--	--	--	--	--		3	141	20	--	2.6	--	120	118
Nov. 21-30,	15,005	47	1	6.1	410	--	--	--	--	--		10	126	30	--	4.5	--	124	116
Dec. 1-10,	26,300	42	1	6.4	276	--	--	--	--	--		16	74	21	--	2.8	--	84	71
Dec. 11-20,	50,820	40	4	6.3	261	--	--	--	--	--		12	70	18	--	3.1	--	84	74
Dec. 21-31,	49,645	41	10	6.4	219	--	--	--	--	--		12	67	16	--	2.4	--	72	62
Jan. 1-10, 1950	67,920	42	1	6.1	189	--	--	--	--	--		13	53	12	--	3.0	--	64	53
Jan. 11-20,	91,840	40	1	6.2	157	--	--	--	--	--		10	46	8	--	2.3	--	52	44
Jan. 21-31,	59,882	42	5	6.3	192	--	--	--	--	--		6	61	11	--	2.0	--	65	60
Feb. 1-10,	84,670	41	5	6.2	206	--	--	--	--	--		5	68	9	--	2.0	--	71	61
Feb. 11-20,	91,430	39	5	6.1	168	--	--	--	--	--		6	48	10	--	2.2	--	58	53
Feb. 21-28,	56,225	36	0	6.3	187	--	--	--	--	--		4	57	10	--	2.3	--	64	61
Mar. 1-10,	35,950	36	0	5.1	266	--	--	--	--	--		4	92	12	--	2.2	--	88	85
Mar. 11-20,	68,580	37	5	6.2	181	--	--	--	--	--		6	56	9	--	2.6	--	52	47
Mar. 21-31,	115,382	41	5	6.2	166	--	--	--	--	--		7	50	10	--	2.2	--	48	42
Apr. 1-10,	93,090	45	5	6.0	125	--	--	--	--	--		10	33	8	--	.7	--	44	36
Apr. 11-20,	31,340	45	5	6.2	194	--	--	--	--	--		9	58	10	--	2.6	--	64	55
Apr. 21-30,	51,070	53	5	6.1	247	--	--	--	--	--		7	84	12	--	2.4	--	82	76
May 1-10,	48,870	57	5	5.9	192	--	--	--	--	--		10	60	10	--	1.8	--	63	55
May 11-20,	32,080	62	5	5.6	227	--	--	--	--	--		8	74	12	--	1.8	--	71	64
May 21-31,	30,400	67	0	5.6	256	--	--	--	--	--		5	86	12	--	2.0	--	81	77
June 1-10,	42,830	70	0	6.3	225	--	--	--	--	--		9	65	12	--	2.1	--	71	64
June 11-20,	21,950	72	0	6.0	239	--	--	--	--	--		6	75	12	--	2.3	--	73	68
June 21-30,	27,120	75	0	5.4	303	--	--	--	--	--		2	105	10	--	2.6	--	94	92
July 1-10,	20,180	73	0	5.8	303	--	--	--	--	--		2	102	11	--	2.6	--	97	95
July 11-20,	14,570	77	0	5.7	385	--	--	--	--	--		3	132	15	--	7.0	--	122	120
July 21-31,	19,887	76	2	6.0	371	--	--	--	--	--		9	119	20	--	2.6	--	112	105
Aug. 1-10,	11,343	78	1	5.8	352	--	--	--	--	21		6	118	20	--	4.3	--	114	109
Aug. 11-20,	8,851	78	1	4.7	427	--	--	--	--	29		2	156	20	--	6.3	--	134	132
Aug. 21-31,	7,058	80	1	4.05	513	--	--	--	--	32		0	192	21	--	4.1	--	160	160
Sept. 1-10,	15,769	77	1	5.1	489	--	--	--	--	31		2	175	25	--	2.8	--	153	151
Sept. 11-20,	19,731	73	1	5.6	393	--	--	--	--	22		4	138	17	--	2.8	--	126	123
Sept. 21-30,	23,150	67	1	6.1	306	--	--	--	--	16		10	98	14	--	3.4	--	97	89
Avaraga	38,640	57	3	5.8	304	--	--	--	--	--		6	100	16	--	2.9	--	98	89

OHIO RIVER AT AMBRIDGE, PA.

Chemical analyses, in parts per million, water year October 1950 to September 1951

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$	
																		Total	Non-carbonate
Oct. 1-10, 1950	8530	67	1	5.7	381	--	--	--	--	22		4	138	15	--	4.7	--	123	120
Oct. 11-20,	23790	61	1	6.2	383	--	--	--	--	24		11	121	24	--	3.0	--	120	111
Oct. 21-31,	11764	61	0	5.5	333	--	--	--	--	18		4	107	17	--	3.2	--	101	98
Nov. 1-5,	32100	61	5	5.5	399	--	--	--	--	22		3	138	17	--	2.6	--	124	122
Nov. 6-10,	65680	51	0	6.4	235	--	--	--	--	13		13	61	17	--	1.1	--	71	60
Nov. 11-20,	31050	46	0	6.1	229	--	--	--	--	12		9	66	14	--	2.4	--	72	65
Nov. 21-30,	76070	38	0	6.4	167	--	--	--	--	7.2		13	40	11	--	1.1	--	53	42
Dec. 1-10,	143700	36	0	6.1	147	--	--	--	--	6.3		7	41	8	--	2.5	--	48	42
Dec. 11-20,	55630	33	0	4.6	226	--	--	--	--	8.6		1	72	9	--	1.5	--	71	70
Dec. 21-31,	26918	33	0	4.05	349	--	--	--	--	16		0	122	11	--	2.1	--	105	105
Jan. 1-3, 1951	24400	34	0	4.7	327	--	--	--	--	14		1	114	14	--	1.4	--	108	107
Jan. 4-10,	111942	32	0	6.1	153	--	--	--	--	6.1		6	44	8	--	1.6	--	50	45
Jan. 11-20,	78660	35	3	5.8	198	--	--	--	--	--		5	62	9	--	2.1	--	67	63
Jan. 21-27,	83715	--	1	6.4	162	--	--	--	--	--		5	47	8	--	1.0	--	54	50
Jan. 28-31,	58900	--	1	4.7	225	--	--	--	--	--		2	79	9	--	1.4	--	76	74
Feb. 1-10,	80390	--	3	5.4	214	--	--	--	--	11		3	72	10	--	2.0	--	70	68
Feb. 11-20,	73560	33	5	5.9	204	--	--	--	--	8.3		6	63	11	--	1.4	--	69	64
Feb. 21-28,	95800	35	4	6.3	151	--	--	--	--	7.9		8	45	9	--	1.4	--	50	43
Mar. 1-10,	93020	37	8	6.3	150	--	--	--	--	--		6	41	8	--	1.8	--	51	46
Mar. 11-20,	48890	36	8	6.2	193	--	--	--	--	--		7	59	10	--	1.5	--	66	60
Mar. 21-31,	59018	36	8	6.6	203	--	--	--	--	--		12	59	11	--	1.1	--	67	57
Apr. 1-10,	87940	42	7	6.1	158	--	--	--	--	3.9		8	41	7	--	1.7	--	52	45
Apr. 11-20,	75820	42	6	6.1	182	--	--	--	--	6.4		9	52	8	--	1.3	--	60	53
Apr. 21-30,	57390	48	6	6.1	196	--	--	--	--	7.1		9	59	7	--	1.3	--	65	58
May 1-10,	49840	56	7	5.4	230	--	--	--	--	9.2		4	78	7	--	.9	--	75	72
May 11-20,	32560	57	7	5.7	293	--	--	--	--	14		6	100	12	--	1.0	--	97	92
May 21-31,	17791	63	7	5.8	370	--	--	--	--	21		6	131	14	--	1.2	--	117	112
June 1-10,	20250	67	7	5.3	408	--	--	--	--	22		3	150	17	--	.5	--	136	134
June 11-20,	74770	64	7	5.8	237	--	--	--	--	11		4	78	11	--	1.7	--	78	75
June 21-30,	25390	70	6	5.0	316	--	--	--	--	13		2	115	12	--	.8	--	110	108
July 1-10,	34780	69	5	5.9	308	--	--	--	--	14		7	101	17	--	.8	--	104	98
July 11-20,	15387	78	5	5.9	355	--	--	--	--	15		4	128	15	--	1.5	--	126	123
July 21-31,	15106	81	5	4.7	459	--	--	--	--	31		3	181	17	--	1.8	--	148	146
Aug. 1-10,	6245	81	4	4.7	506	--	--	--	--	42		2	222	18	--	1.0	--	168	166
Aug. 11-20,	5295	82	5	5.1	574	--	--	--	--	40		3	225	23	--	1.5	--	184	182
Aug. 21-31,	4139	81	1	4.8	700	--	--	--	--	--		1	262	27	--	.7	--	228	227
Sept. 1-10,	4855	79	1	5.2	735	--	--	--	--	--		2	295	30	--	.5	--	244	242
Sept. 11-20,	5405	78	2	4.7	760	--	--	--	--	--		1	305	29	--	.7	--	232	231
Sept. 21-30,	4142	74	5	4.9	786	--	--	--	--	--		2	310	36	--	3.1	--	240	238
Average	45230	54	5	5.6	323	--	--	--	--	15		5	113	14	--	1.6	--	105	100

OHIO RIVER AT AMERIDGE, PENNSYLVANIA

Cross-section samples for water year ended September 30, 1951

Date	Discharge (second-feet)	Station	Time	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Parts per million: Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Total hardness as $CaCO_3$
Oct. 13,1950		1380	9:15am	62	1	5.0	452	2	164	20	3.4	135
		1090	9:10	62	1	4.8	459	1	167	20	3.1	151
		870	9:05	62	1	5.0	454	2	171	20	3.1	147
		625	9:00	62	1	4.9	449	2	161	21	3.3	143
		340	8:55	62	1	5.1	450	3	165	21	4.4	139
Nov. 14,----		1380	11:20am	48	3	5.8	260	10	77	10	3.0	82
		1090	11:15	47	3	6.2	258	15	75	12	2.7	82
		870	11:10	46	2	5.8	238	10	66	11	2.7	75
		625	11:05	46	2	6.1	216	10	59	11	2.4	69
		340	11:00	45	3	6.0	215	12	59	11	2.4	67
Dec. 13,----		1380	9:30am	34	1	4.6	271	1	101	6	1.8	91
		1090	9:25	34	2	4.45	255	0	93	5	1.4	82
		870	9:20	34	1	4.7	235	1	81	6	1.4	78
		625	9:15	33	3	4.7	201	1	67	7	1.5	62
		340	9:10	33	1	5.3	180	3	58	7	1.7	61
Jan. 17,1951		1380	10:40am	36	0	5.6	229	5	81	6	3.2	83
		1090	10:45	36	0	5.4	221	4	73	6	2.7	76
		870	10:50	36	0	5.4	207	4	65	6	2.5	71
		625	10:55	36	1	5.8	196	5	57	8	2.5	65
		340	11:00	36	1	6.0	186	8	54	8	2.5	62
Feb. 21,----		1380	8:45am	42	2	5.6	252	5	88	8	2.1	86
		1090	8:48	41	2	5.7	233	6	81	8	1.9	78
		870	8:50	41	2	5.7	209	6	69	8	1.8	70
		625	8:55	40	2	6.0	181	10	53	8	1.4	58
		340	9:00	40	2	6.2	163	11	45	9	2.4	54
Mar. 14,----		1380	10:46am	43	4	4.7	292	1	97	9	1.7	91
		1090	10:42	42	4	4.8	250	2	89	8	1.6	76
		870	11:05	41	6	6.0	218	24	64	9	.5	68
		625	10:38	41	5	5.1	207	3	67	10	1.8	57
		340	10:30	40	4	5.6	185	5	55	9	1.9	55
Apr. 20,----		1380	12:20pm	49	1	4.7	271	2	103	6	2.0	96
		1090	12:25	48	1	4.7	268	1	98	6	2.0	94
		870	12:30	47	2	4.8	252	1	88	6	1.8	87
		625	12:35	46	2	5.5	208	4	69	7	1.9	75
		340	12:40	46	2	5.9	189	8	55	8	2.1	63
May 15,----		1380	9:45am	63	1	4.7	312	1	114	8	1.8	112
		1090	9:50	62	2	4.6	312	1	116	9	2.1	112
		870	9:55	62	2	4.7	299	1	105	10	2.0	101
		625	9:55	62	2	5.7	281	3	97	11	2.2	101
		340	10:00	61	2	5.6	271	2	90	12	2.0	98
June 27,----		1380	9:40am	78	3	4.5	351	0	134	10	1.8	118
		1090	9:50	78	4	4.35	355	0	134	10	1.8	120
		870	9:55	78	3	4.40	351	0	134	10	1.8	120
		625	10:00	77	2	6.0	332	6	120	10	.7	120
		340	10:05	77	3	4.5	326	0	122	12	1.4	110
July 16,----		1380	8:20am	78	4	4.5	379	0	146	12	1.8	128
		1090	8:15	79	4	4.40	375	0	144	14	1.3	134
		870	8:10	79	4	5.3	369	3	142	12	.6	126
		625	8:05	78	2	4.40	376	0	144	13	1.9	130
		340	8:00	78	2	5.2	371	3	144	16	1.3	126
Aug. 20,----		1380	1:45pm	84	5	5.1	598	2	242	23	.3	192
		1090	1:50	83	6	5.1	597	2	245	22	.3	198
		870	1:55	83	7	5.0	599	2	245	23	.4	194
		625	2:00	84	7	5.4	599	5	245	24	.4	200
		340	2:10	84	6	5.1	601	4	245	24	.5	192
Sept. 12,----		1380	10:05am	79	0	5.1	720	3	285	28	.8	216
		1090	10:15	79	0	5.0	718	2	285	28	.6	218
		870	10:20	79	1	5.1	717	3	272	28	.7	222
		625	10:27	79	1	5.3	715	3	282	27	.7	220
		340	10:35	79	1	5.1	721	3	295	27	.7	220

CLARION RIVER NEAR PINEY, PENNSYLVANIA

Chemical analyses, in parts per million, water year October 1949 to September 1950

Dete of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$	
																		Total	Noncarbonate
Oct. 1-10, 1949	50	64	120	6.9	536	—	—	—	—	41		54	96	74	—	.6	—	159	115
Oct. 11-20,	32	—	120	6.9	555	—	—	—	—	46		56	96	79	—	.4	—	158	112
Oct. 21-31,	39	60	120	6.7	513	—	—	—	—	40		60	92	70	—	.8	—	150	109
Nov. 1-10,	40	56	120	6.5	528	—	—	—	—	47		58	97	78	—	1.8	—	158	110
Nov. 11-20,	47	—	120	6.8	642	—	—	—	—	53		74	109	94	—	1.9	—	192	130
Nov. 21-30,	161	51	13	6.9	668	—	—	—	—	44		76	112	96	—	2.1	—	220	158
Dec. 1-10,	356	—	110	6.9	632	—	—	—	—	50		72	107	94	—	2.1	—	196	107
Dec. 11-14,	2,207	—	110	7.1	571	—	—	—	—	—		71	96	82	—	1.4	—	174	116
Dec. 15-20,	1,620	36	35	7.0	284	—	—	—	—	—		32	55	32	—	1.1	—	92	66
Dec. 21-31,	1,974	37	30	6.7	197	—	—	—	—	—		22	42	20	—	.8	—	62	44
Jan. 1-10, 1950	5,774	38	30	6.6	147	—	—	—	—	—		18	37	12	—	1.0	—	48	33
Jan. 11-20,	5,605	39	10	5.8	119	—	—	—	—	—		4	34	6	—	.9	—	36	33
Jan. 21-31,	3,467	41	20	6.7	128	—	—	—	—	—		3	37	9	—	.8	—	45	43
Feb. 1-10,	1,874	—	25	6.4	139	—	—	—	—	—		11	40	12	—	.8	—	47	38
Feb. 11-20,	5,577	38	15	5.6	126	—	—	—	—	—		4	37	7	—	.6	—	41	33
Feb. 21-28,	3,573	36	10	5.5	119	—	—	—	—	—		3	35	7	—	.6	—	39	37
Mar. 1-10,	2,021	—	7	6.0	132	—	—	—	—	—		5	36	10	—	.6	—	42	38
Mar. 11-20,	2,632	37	20	5.6	141	—	—	—	—	—		6	36	10	—	.4	—	45	40
Mar. 21-31,	7,126	38	20	5.5	120	—	—	—	—	—		4	32	10	—	.3	—	39	36
Apr. 1-10,	6,577	—	15	5.7	94.6	—	—	—	—	—		2	26	5	—	.7	—	32	30
Apr. 11-20,	1,702	44	20	6.1	122	—	—	—	—	—		5	32	8	—	.5	—	39	35
Apr. 21-30,	2,226	44	20	6.3	166	—	—	—	—	—		8	43	13	—	.3	—	53	46
May 1-10,	3,119	—	20	6.3	119	—	—	—	—	—		6	30	10	—	.4	—	39	34
May 11-20,	2,343	58	15	6.3	134	—	—	—	—	—		8	34	12	—	.2	—	43	36
May 21-31,	1,557	—	25	6.2	142	—	—	—	—	—		11	30	12	—	.4	—	43	34
June 1-10,	1,025	—	25	6.5	170	—	—	—	—	—		11	38	14	—	.6	—	52	43
June 11-20,	1,345	67	25	6.4	161	—	—	—	—	—		10	37	11	—	.6	—	48	40
June 21-30,	610	—	30	6.4	177	—	—	—	—	—		11	44	14	—	.7	—	55	46
July 1-10,	605	68	40	6.3	220	—	—	—	—	—		12	53	19	—	.7	—	67	57
July 11-20,	538	69	60	6.4	298	—	—	—	—	—		24	66	29	—	1.0	—	91	71
July 21-31,	1,163	—	50	6.4	286	—	—	—	—	—		22	60	27	—	.9	—	88	70
Aug. 1-10,	1,014	69	30	6.3	195	—	—	—	—	—		12	45	16	—	.6	—	62	52
Aug. 11-20,	580	—	20	6.1	161	—	—	—	—	—		10	39	12	—	.8	—	52	44
Aug. 21-31,	461	—	5	6.1	191	—	—	—	—	—		7	51	16	—	.6	—	58	46
Sept. 1-10,	985	71	35	6.4	264	—	—	—	—	—		16	63	26	—	.4	—	81	58
Sept. 11-20,	919	—	35	6.5	231	—	—	—	—	—		17	55	22	—	.7	—	72	58
Sept. 21-30,	530	62	35	6.5	231	—	—	—	—	—		19	48	24	—	.5	—	68	52
Average	1,950		42	6.4	259	—	—	—	—	—		23	55	29	—	.8	—	79	61

Chamical anelysee, in parts per million, water year October 1950 to September 1951

Data of collaction	Maan dis-charga (second-feet)	Tam-para-ture (°F.)	Color	pH	Spacific conduct-ance (Micromhoe at 25°C.)	Silica (SiO_2)	Iron (Fe)	Cal-cium (Ca)	Mag-na-eium (Mg)	So-dium (Na)	Po-tae-sium (K)	Bicar-bonata (HCO_3)	Sul-fata (SO_4)	Chlo-ride (Cl)	Fluo-ride (F)	Ni-trata (NO_3)	Die-solvad solide	Hardnaae as $CaCO_3$	
																		Total	Non-carbon-ata
Oct. 1-10, 1950----	397	60	40	6.6	242	--	--	--	--	--		23	53	26	--	.7	--	73	54
Oct. 11-20,--------	1645	--	40	7.1	263	--	--	--	--	--		24	55	28	--	1.0	--	82	62
Oct. 21-31,--------	665	55	25	6.6	202	--	--	--	--	--		21	44	19	--	.7	--	64	46
Nov. 1-5,----------	3309	53	20	6.6	202	--	--	--	--	--		20	44	20	--	.7	--	63	46
Nov. 6-10,---------	4696	59	10	6.1	117	--	--	--	--	--		9	30	7	--	.9	--	39	32
Nov. 11-20,--------	2116	44	10	6.4	130	--	--	--	--	--		9	34	10	--	.6	--	44	36
Nov. 21-30,--------	8243	41	10	6.1	104	--	--	--	--	--		4	32	6	--	.9	--	33	30
Dec. 1-10,---------	6642	37	5	5.2	110	--	--	--	--	3.6		3	33	6	--	.8	--	38	36
Dec. 11-20,--------	2184	--	3	5.7	120	--	--	--	--	4.4		3	38	7	--	.8	--	43	41
Dec. 21-31,--------	999	35	25	6.2	162	--	--	--	--	8.3		7	47	12	--	.6	--	54	48
Jan. 1-5,1951------	5010	36	35	6.3	180	--	--	--	--	9.8		12	49	14	--	.8	--	60	50
Jan. 6-10,---------	4376	--	20	6.2	99.1	--	--	--	--	4.6		6	27	6	--	.6	--	32	27
Jan. 11-20,--------	3225	--	15	6.5	131	--	--	--	--	7.8		12	36	8	--	.5	--	42	32
Jan. 21-31,--------	4361	37	15	7.0	103	--	--	--	--	--		6	30	7	--	.8	--	33	28
Feb. 1-10,---------	3116	--	20	7.0	119	--	--	--	--	--		9	32	7	--	.9	--	38	31
Feb. 11-20,--------	4589	34	20	6.4	115	--	--	--	--	--		8	32	8	--	.6	--	36	29
Feb. 21-28,--------	7089	39	10	6.2	93.6	--	--	--	--	4.1		6	26	6	--	.7	--	32	27
Mar. 1-10,---------	7311	--	10	6.4	93.9	--	--	--	--	--		8	29	6	--	.6	--	33	26
Mar. 11-20,--------	2655	41	14	6.3	107	--	--	--	--	--		6	32	7	--	.6	--	34	29
Mar. 21-31,--------	3030	41	20	6.6	135	--	--	--	--	--		11	38	9	--	.7	--	42	33
Apr. 1-10,---------	4278	44	2	5.9	101	--	--	--	--	5.4		5	28	5	--	.6	--	29	25
Apr. 11-20,--------	3176	47	2	5.9	119	--	--	--	--	4.1		4	32	7	--	.5	--	38	35
Apr. 21-30,--------	3320	49	2	6.0	112	--	--	--	--	5.1		6	32	6	--	.6	--	36	31
May 1-10,----------	1649	57	1	6.1	119	--	--	--	--	5.4		6	34	7	--	.6	--	39	34
May 11-20,---------	1307	58	3	6.0	141	--	--	--	--	9.0		9	40	10	--	.6	--	44	37
May 21-31,---------	1294	64	4	6.0	166	--	--	--	--	7.7		10	42	13	--	.7	--	54	46
June 1-10,---------	1190	66	27	6.4	171	--	--	--	--	8.9		9	48	14	--	.4	--	58	51
June 11-20,--------	2119	67	32	6.5	148	--	--	--	--	7.3		9	38	13	--	.7	--	50	43
June 21-30,--------	864	68	18	6.4	111	--	--	--	--	5.0		7	27	9	--	.5	--	36	30
July 1-10,---------	1299	70	4	5.8	153	--	--	--	--	11		6	43	13	--	.7	--	45	40
July 11-20,--------	697	71	8	6.0	139	--	--	--	--	10		6	38	13	--	.4	--	41	36
July 21-31,--------	310	73	10	6.3	151	--	--	--	--	5.3		6	39	11	--	.7	--	50	45
Aug. 1-10,---------	185	73	8	6.1	162	--	--	--	--	5.8		6	41	13	--	.8	--	54	49
Aug. 11-20,--------	132	72	10	6.0	179	--	--	--	--	5.8		6	47	13	--	.6	--	60	55
Aug. 21-31,--------	110	75	2	6.3	216	--	--	--	--	--		8	55	20	--	1.0	--	62	55
Sept. 1-10,--------	82	70	10	6.1	242	--	--	--	--	--		11	55	24	--	.8	--	71	62
Sapt. 11-20,-------	158	69	60	6.9	307	--	--	--	--	--		11	64	35	--	1.5	--	91	82
Sapt. 21-30,-------	121	--	80	6.8	333	--	--	--	--	--		13	73	42	--	1.4	--	104	93
Average--------	2437	55	17	6.3	155	--	--	--	--	--		9	40	13	--	.7	--	49	42

KISKIMINETAS RIVER AT LEECHBURG, PA.

Chamical analyses, in parts par million, watar year Octobar 1949 to Saptamber 1950

Date of collaction	Mean discharga (sacondfaat)	Tamparature (°F.)	Color	pH	Spacific conductanca (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fa)	Manganese (Mn)	Calcium (Ca)	Magnasium (Mg)	Sodium (Na)	Potasium (K)	Bicarbonata (HCO_3)	Sulfata (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrata (NO_3)	Dissolvad aolids	Hardnass as $CaCO_3$ Total	Hardnass as $CaCO_3$ Noncarbonata	Total acidity as H_2SO_4
Oct. 1-10, 1949	404	65	5	2.80	1790	21	15	12	6.8	97	27	56	2.3	0	626	12	12	22	949	353	353	252
Oct. 11-20,	431	63	5	2.70	1910	23	15	12	6.0	100	35	56	1.3	0	692	14	8.0	21	984	393	393	286
Oct. 21-31,	380	57	5	2.75	1780	21	16	22	4.6	84	26	62	1.1	0	613	14	14	22	927	317	317	298
Nov. 1-14,	810	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nov. 15-20,	850	48	5	2.70	1700	--	--	--	--	--	--	--	--	0	560	14	22	11	--	224	224	380
Nov. 21-29,	879	42	10	2.85	1410	--	--	--	--	--	--	--	--	0	445	14	11	11	--	224	224	209
Nov. 30,	4,270	45	--	3.60	613	--	--	--	--	--	--	--	--	0	226	7	--	4.7	--	176	176	68
Dec. 1-3,	2,833	43	10	3.50	503	--	--	--	--	--	--	--	--	0	158	6	3.0	8.8	--	116	116	61
Dec. 4-10,	1,450	41	10	3.00	863	--	--	--	--	--	--	--	--	0	240	8	10	10	--	144	144	124
Dec. 11-13, 19-20,	5,640	41	5	3.30	634	--	--	--	--	--	--	--	--	0	192	7	3.0	9.2	--	128	128	82
Dec. 14-18,	6,724	39	5	3.90	275	--	--	--	--	--	--	--	--	0	92	4	1.0	5.0	--	76	76	29
Dec. 21-27, 31,	3,528	42	4	3.30	582	--	--	--	--	--	--	--	--	0	170	6	3.0	8.6	--	116	116	70
Dec. 28-30,	6,740	43	4	3.90	296	--	--	--	--	--	--	--	--	0	102	4	1.0	5.0	--	84	84	29
Jan. 1-10, 1950	9,432	44	10	3.50	385	--	--	--	--	--	--	--	--	0	117	4	.5	6.6	--	96	96	48
Jan. 11-20,	6,594	42	10	3.40	464	--	--	--	--	--	--	--	--	0	154	2	.8	7.2	--	112	112	62
Jan. 21-31,	3,964	45	10	3.20	663	--	--	--	--	--	--	--	--	0	200	7	3.2	12	--	146	146	97
Feb. 1-10,	7,502	40	5	3.65	366	--	--	--	--	--	--	--	--	0	123	1	.2	4.5	--	98	98	46
Feb. 11-20,	8,208	41	5	3.65	370	--	--	--	--	--	--	--	--	0	125	3.0	.2	4.6	--	100	100	48
Feb. 21-28,	5,200	38	5	3.30	520	--	--	--	--	--	--	--	--	0	165	4.0	--	11	--	116	116	67
Mar. 1-13,	3,128	39	5	3.00	810	--	--	--	--	--	--	--	--	0	233	4.0	--	6.6	--	152	152	87
Mar. 14-20,	6,420	42	5	3.50	399	--	--	--	--	--	--	--	--	0	128	4.0	--	3.9	--	94	94	55
Mar. 21-31,	11,001	42	5	3.80	302	--	--	--	--	--	--	--	--	0	99	4.0	--	3.0	--	86	86	37
Apr. 1-10,	5,081	49	5	3.30	514	--	--	--	--	--	--	--	--	0	164	4.0	--	5.4	--	116	116	64
Apr. 11-20,	2,300	51	5	3.00	1090	--	--	--	--	--	--	--	--	0	297	7.0	--	32	--	160	160	169
Apr. 21-30,	4,042	61	5	3.10	766	--	--	--	--	--	--	--	--	0	214	6.0	--	18	--	132	132	106
May 1-10,	3,033	71	5	3.15	741	--	--	--	--	--	--	--	--	0	213	6.5	--	17	--	127	127	109
May 11-20,	2,214	74	5	3.00	1020	--	--	--	--	--	--	--	--	0	288	8.0	--	32	--	157	157	170
May 21-31,	3,866	68	5	3.20	665	--	--	--	--	--	--	--	--	0	195	5.0	--	32	--	111	111	96
June 1-10,	4,215	71	5	3.25	614	--	--	--	--	--	--	--	--	0	165	4.0	--	13	--	113	113	77
June 11-20,	1,558	77	10	2.95	1170	--	--	--	--	--	--	--	--	0	310	7.0	--	42	--	179	179	178
June 21-30,	1,639	77	10	2.95	1190	--	--	--	--	--	--	--	--	0	328	7.0	--	7.5	--	187	187	185
July 1-10,	3,218	76	10	3.05	1010	--	--	--	--	--	--	--	--	0	280	7.0	--	45	--	146	146	185
July 11-20,	2,292	80	10	2.75	1480	--	--	--	--	--	--	--	--	0	340	6.0	--	70	--	148	148	297
July 21, 24-31,	1,051	83	0	2.70	1360	--	--	--	--	--	--	--	--	0	400	11	24	67	--	238	238	286
July 22, 23,	1,050	78	2	6.6	178	--	--	--	--	--	--	--	--	14	53	5.0	.5	3.2	--	63	52	--
Aug. 1-10,	754	83	0	2.70	1640	--	--	--	--	--	--	--	--	0	542	11	27	68	--	290	290	310
Aug. 11-20,	898	80	0	2.70	1620	--	--	--	--	--	--	--	--	0	472	13	28	63	--	286	286	334
Aug. 21-31, Sept. 1-2	894	78	0	2.80	1340	--	--	--	--	--	--	--	--	--	380	13	19	37	--	246	246	216
Sept. 3-7,	1,946	75	0	3.05	860	--	--	--	--	--	--	--	--	--	274	7.0	8.6	15	--	169	169	114
Sept. 8-14, 16-20,	1,749	72	0	2.80	1140	--	--	--	--	--	--	--	--	0	306	8.0	21	43	--	179	179	199
Sept. 15,	5,110	75	--	4.10	371	--	--	--	--	--	--	--	--	--	135	6.0	9.6	5.4	--	121	121	36
Sept. 21-30,	1,632	63	0	2.80	1070	--	--	--	--	--	--	--	--	--	302	8.0	16	42	--	139	139	177
Average	3,322	58	5	3.35	912	--	--	--	--	--	--	--	--	--	280	7.0	--	21	--	166	166	144

Chemical analyses, in parts per million, water year October 1950 to September 1951

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$		Total acidity as H_2SO_4
																				Total	Non-carbonate	
Oct. 1-10, 1950	1,007	64	4	2.90	1370	--	--	--	--	--	--	99		0	490	14	14	16	--	293	293	223
Oct. 11-20,	2,217	60	3	3.10	831	--	--	--	--	--	--	37		0	245	8	8.0	2.2	--	163	163	117
Oct. 21-31,	1,079	61	3	2.95	1150	--	--	--	--	--	--	55		0	355	11	10	2.2	--	230	230	167
Nov. 1-4,	1,514	62	4	3.00	1080	--	--	--	--	--	--	61		0	335	10	16	18	--	230	230	196
Nov. 5-10,	6,430	62	4	3.55	443	--	--	--	--	--	--	16		0	136	5	1.0	.9	--	104	104	41
Nov. 11-13,	3,463	53	3	3.45	488	--	--	--	--	--	--	27		0	160	6	4.0	.7	--	109	109	61
Nov. 14-20,	2,047	48	4	3.15	797	--	--	--	--	--	--	43		0	235	6	14	.5	--	156	156	138
Nov. 21-30,	3,914	42	5	3.60	473	--	--	--	--	--	--	22		0	160	6	2.0	.6	--	121	121	54
Dec. 1,2,4-10,	12,581	43	5	4.05	343	--	--	--	--	--	--	--		0	114	5	.1	.8	--	88	88	37
Dec. 3,	11,100	30	5	2.80	1170	--	--	--	--	--	--	--		0	240	11	6.0	2.4	--	139	139	178
Dec. 11-13,	7,200	41	6	3.40	607	--	--	--	--	--	--	--		0	192	6	.2	1.3	--	123	123	80
Dec. 14-20,	3,121	40	8	2.90	1090	--	--	--	--	--	--	47		0	320	7	3.6	5.4	--	184	184	176
Dec. 21-31,	31,355	42	6	2.95	1080	--	--	--	--	--	--	--		0	315	7	7.0	5.3	--	178	178	170
Jan. 1-3, 1951	2,800	52	10	2.90	1110	--	--	--	--	--	--	--		0	305	8	10	5.6	--	170	170	182
Jan. 4-10,	11,457	47	6	3.50	449	--	--	--	--	--	--	--		0	140	5	.4	1.3	--	100	100	56
Jan. 11-20,	8,846	42	5	3.30	537	--	--	--	--	--	--	--		0	163	5	.7	1.4	--	109	109	64
Jan. 21-31,	7,566	--	--	--	--	--	--	--	--	--	--	--		--	--	--	--	--	--	--	--	--
Feb. 1-10,	8,089	43	5	3.30	623	--	--	--	--	--	--	--		0	188	5	.3	.8	--	119	119	78
Feb. 11-13,	5,087	57	5	3.00	905	--	--	--	--	--	--	38		0	275	5	2.0	2.2	--	161	161	178
Feb. 14-20,	7,360	65	5	3.40	471	--	--	--	--	--	--	--		0	145	3	.2	.9	--	103	103	60
Feb. 21-23,	10,480	65	3	3.70	316	--	--	--	--	--	--	--		0	105	4	.3	2.9	--	78	78	37
Feb. 24-28,	6,408	68	2	3.25	571	--	--	--	--	--	--	--		0	172	5	.5	3.2	--	119	119	38
Mar. 1-10,	6,986	66	2	3.10	558	--	--	--	--	--	--	--		0	170	5	.9	3.8	--	114	114	34
Mar. 11-20,	3,510	50	2	2.90	910	--	--	--	--	--	--	--		0	268	6	3.4	2.0	--	166	166	66
Mar. 21-31,	5,993	51	2	3.20	593	--	--	--	--	--	--	--		0	180	6	1.4	4.6	--	120	120	39
Apr. 1-10,	8,744	54	6	3.50	421	--	--	--	--	--	--	16		0	130	4	.6	2.9	--	94	94	53
Apr. 11-15, 17-18,	8,191	53	6	3.45	455	--	--	--	--	--	--	21		0	151	3	.6	3.2	--	101	101	53
Apr. 16, 19, 20,	5,637	54	8	2.85	888	--	--	--	--	--	--	29		0	218	5	9.5	32	--	142	142	138
Apr. 21-29,	4,764	59	7	3.10	714	--	--	--	--	--	--	29		0	208	5	3.0	12	--	134	134	98
Apr. 30,	18,500	66	6	3.65	388	--	--	--	--	--	--	14		0	130	3	.4	2.4	--	102	102	60
May 1-5,	7,948	64	5	3.55	387	--	--	--	--	--	--	15		0	125	3	.4	2.6	--	91	91	46
May 6-10,	3,116	60	5	2.90	936	--	--	--	--	--	--	34		0	262	4	5.5	18	--	163	163	134
May 11, 17-20,	2,312	72	6	2.90	1000	--	--	--	--	--	--	45		0	278	8	9.5	26	--	178	178	154
May 12-16,	4,122	65	6	3.35	572	--	--	--	--	--	--	25		0	185	6	1.0	4.1	--	129	129	72
May 21-31,	1,610	69	2	2.85	1330	--	--	--	--	--	--	56		0	358	10	14	2.5	--	222	222	219
June 1-9.	1,967	75	2	2.85	1440	--	--	--	--	--	--	79		0	440	10	8.0	1.0	--	242	242	228
June 10,	10,000	68	3	3.65	430	--	--	--	--	--	--	19		0	122	4	.5	.6	--	84	84	48
June 11-18,	12,177	64	1	3.90	319	--	--	--	--	--	--	25		0	116	4	6.0	.3	--	82	82	36
June 19-20,	4,730	69	2	3.00	814	--	--	--	--	--	--	30		0	205	5	10	1.2	--	126	126	138
June 21-28,	3,460	76	2	2.80	1120	--	--	--	--	--	--	39		0	312	6	9.0	.8	--	181	181	179
June 29-30,	10,420	73	3	3.55	405	--	--	--	--	--	--	11		0	130	4	.4	.4	--	104	104	42
July 1-10,	4,772	72	2	2.90	687	--	--	--	--	--	--	15		0	200	6	3.6	.5	--	135	135	89
July 11-20,	1,700	79	5	3.00	1320	--	--	--	--	--	--	112		0	430	7	10	25	--	260	260	196
July 21-22, 28-31,	1,543	79	5	3.00	1280	--	--	--	--	--	--	140		0	398	6	18	51	--	200	200	227
July 23-27,	5,766	75	5	3.40	590	--	--	--	--	--	--	40		0	181	4	4.0	9.2	--	126	126	71
Aug. 1-10,	913	77	5	2.95	1500	--	--	--	--	--	--	166		0	532	9	20	49	--	298	298	284
Aug. 11, 13-20,	822	79	2	2.75	1740	--	--	--	--	--	--	--		0	530	12	15	75	--	204	204	343
Aug. 12,	732	76	--	2.10	5420	--	--	--	--	--	--	--		0	560	2	22	770	--	328	328	930
Aug. 21-31,	516	74	2	2.80	1850	--	--	--	--	--	--	--		0	645	18	11	61	--	340	340	320

KISKIMINETAS RIVER AT LEECHBURG, PA.--Continued

Chemical analyses, in parts per million, water year October 1950 to September 1951

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$		Total acidity as H_2SO_4
																				Total	Noncarbonate	
Sept. 1-10, 1951----	538	73	1	2.70	2010	--	--	--	--	--	--	--		0	660	16	18	92	--	312	312	751
Sept. 11-20,--------	505	73	10	2.80	1830	--	--	--	--	--	--	--		0	678	18	--	46	--	415	415	269
Sept. 21-30,--------	432	--	20	2.80	1910	--	--	--	--	--	--	--		0	750	22	--	62	--	480	480	292
Average----------	4,511	61	5	3.15	975	--	--	--	--	--	--	--		0	281	7	6.2	13.3	--	172	172	156

Chemical analyses, in parts per million, water year October 1949 to September 1950

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$		Total acidity as H_2SO_4
																				Total	Noncarbonate	
Oct. 1-10, 1949----	1,225	64	5	3.70	586	--	--	--	--	--	--	--	--	0	228	12	--	1.8	--	141	141	32
Oct. 11-20,--------	2,435	64	5	3.65	649	--	--	--	--	--	--	--	--	0	258	12	--	1.1	--	153	153	43
Oct. 21-31,--------	2,026	59	5	3.70	580	--	--	--	--	--	--	--	--	0	223	12	--	1.2	--	139	139	35
Nov. 1,----------	9,380	56	10	3.75	575	--	--	--	--	--	--	--	--	0	219	10	--	--	--	--	--	--
Nov. 2-6,---------	11,124	53	5	4.00	273	--	--	--	--	--	--	--	--	0	93	6	--	1.8	--	66	66	16
Nov. 7-10,--------	5,965	52	5	5.0	175	--	--	--	--	--	--	--	--	1	58	2	--	1.5	--	47	46	--
Nov. 11-13,-------	3,503	51	5	4.6	183	--	--	--	--	--	--	--	--	1	62	5	--	1.8	--	52	51	--
Nov. 14-20,-------	4,303	48	5	4.25	230	--	--	--	--	--	--	--	--	0	78	4	--	1.8	--	62	62	8
Nov. 21, 22, 30,---	12,103	45	2	4.15	207	--	--	--	--	--	--	--	--	0	66	5	--	1.8	--	53	53	11
Nov. 23-29,-------	5,094	43	1	3.65	321	--	--	--	--	--	--	--	--	0	118	6	--	1.9	--	88	88	15
Dec. 1-10,--------	10,690	40	1	5.2	149	--	--	--	--	--	--	--	--	4	52	3	--	2.6	--	44	41	--
Dec. 11-20,-------	18,278	40	2	4.9	174	--	--	--	--	--	--	--	--	4	61	4	--	2.4	--	56	53	--
Dec. 21-31,-------	17,318	41	1	4.8	177	--	--	--	--	--	--	--	--	4	62	4	--	1.6	--	57	54	--
Jan. 1-10, 1950----	24,395	43	1	4.6	203	--	--	--	--	--	--	--	--	2	76	4	--	2.3	--	66	64	--
Jan. 11-20,-------	19,370	44	1	4.00	259	--	--	--	--	--	--	--	--	0	93	4	--	2.2	--	70	70	22
Jan. 21-31,-------	17,615	44	15	4.10	281	--	--	--	--	--	--	--	--	0	77	4	--	1.8	--	81	81	29
Feb. 1-10,--------	42,400	44	0	4.05	224	--	--	--	--	--	--	--	--	0	76	1	--	2.7	--	76	76	35
Feb. 11-20,-------	20,910	42	5	4.05	251	--	--	--	--	--	--	--	--	0	89	2	--	2.3	--	90	90	30
Feb. 21-28,-------	11,088	39	0	3.85	300	--	--	--	--	--	--	--	--	0	109	3	--	1.9	--	102	102	42
Mar. 1-10,--------	8,880	36	5	3.65	376	--	--	--	--	--	--	--	--	0	133	3	--	1.6	--	127	127	43
Mar. 11-20,-------	22,300	38	5	4.15	219	--	--	--	--	--	--	--	--	0	77	5	--	3.2	--	67	67	19
Mar. 21-31,-------	30,100	43	5	4.30	204	--	--	--	--	--	--	--	--	0	68	2	--	3.3	--	61	61	14
Apr. 1-10,--------	10,089	48	5	4.00	270	--	--	--	--	--	--	--	--	0	95	3	--	3.5	--	75	75	25
Apr. 11-20,-------	4,142	48	5	3.80	441	--	--	--	--	--	--	--	--	0	165	6	--	3.3	--	120	120	32
Apr. 21-26,-------	13,847	52	0	3.70	441	--	--	--	--	--	--	--	--	0	158	6	--	3.1	--	102	102	44
Apr. 27-30,-------	14,850	56	0	4.35	230	--	--	--	--	--	--	--	--	0	86	5	--	1.8	--	76	76	13
May 1-10,---------	15,045	59	0	4.45	203	--	--	--	--	--	--	--	--	0	72	5	--	1.7	--	59	59	16
May 11-20,--------	8,525	63	0	4.05	285	--	--	--	--	--	--	--	--	0	100	4	--	2.0	--	67	67	26
May 21-31,--------	8,473	66	5	4.10	295	--	--	--	--	--	--	--	--	0	108	3	--	2.2	--	78	78	21
June 1-5,---------	15,588	68	0	4.15	271	--	--	--	--	--	--	--	--	0	97	3	--	2.0	--	70	70	20
June 6-10,--------	14,782	69	5	4.6	180	--	--	--	--	--	--	--	--	4	63	2	--	1.6	--	52	49	--
June 11-20,-------	6,735	70	0	4.10	280	--	--	--	--	--	--	--	--	0	101	2	--	1.8	--	74	74	23
June 21-26,-------	12,550	73	0	4.10	325	--	--	--	--	--	--	--	--	0	126	3	--	1.8	--	85	85	25
June 27-30,-------	22,225	72	5	4.8	166	--	--	--	--	--	--	--	--	2	55	2	--	2.1	--	48	46	--
July 1-10,--------	4,164	72	5	5.9	213	--	--	--	--	--	--	--	--	3	76	4	--	2.1	--	65	63	--
July 11-20,-------	4,762	75	5	4.20	386	--	--	--	--	--	--	--	--	0	154	5	--	2.3	--	110	110	34
July 21-31,-------	7,239	74	5	4.00	325	--	--	--	--	--	--	--	--	0	112	4	--	2.0	--	89	89	24
Aug. 1-10,--------	2,105	76	5	4.25	351	--	--	--	--	--	--	--	--	0	134	5	--	1.0	--	92	92	22
Aug. 11-20,-------	2,606	74	1	3.60	511	--	--	--	--	--	--	--	--	0	213	6	--	.8	--	128	128	61
Aug. 21, 23-31,----	1,446	76	1	3.95	687	--	--	--	--	--	--	--	--	0	305	6	--	.8	--	196	196	56
Aug. 22,----------	1,800	75	1	4.15	362	--	--	--	--	--	--	--	--	0	141	6	--	1.9	--	99	99	19
Sept. 1-7,--------	5,234	76	1	3.75	554	--	--	--	--	--	--	--	--	0	218	8	--	.9	--	144	144	47
Sept. 8,----------	4,070	72	1	4.00	285	--	--	--	--	--	--	--	--	0	110	3	--	.7	--	76	76	25
Sept. 10-11, 13,---	4,552	74	1	3.80	578	--	--	--	--	--	--	--	--	0	238	7	--	.8	--	159	159	48
Sept. 14, 16-20,----	5,551	72	1	5.0	252	--	--	--	--	--	--	--	--	2	100	3	--	.9	--	84	82	--
Sept. 21-30,------	10,834	64	1	6.2	276	--	--	--	--	--	--	--	--	8	104	4	--	1.3	--	95	88	--
Average---------	11,490	58	3	4.24	314	--	--	--	--	--	--	--	--	--	120	4	--	1.8	--	87	87	--

MONONGAHELA RIVER AT CHARLEROI, PA.

Chemical analyses, in parts per million, water year October 1950 to September 1951

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$		Total acidity as H_2SO_4
																				Total	Noncarbonate	
Oct. 1-10, 1950	2829	63	3	4.40	381	--	--	--	--	--	--	18		0	144	8	--	2.0	--	123	123	20
Oct. 11-20,	4864	--	3	4.40	323	--	--	--	--	--	--	17		0	107	9	--	1.2	--	88	88	12
Oct. 21-31,	2907	62	3	4.15	408	--	--	--	--	--	--	20		0	147	9	--	1.4	--	121	121	28
Nov. 1-10,	14407	60	2	4.9	263	--	--	--	--	--	--	13		3	92	8	--	1.4	--	83	81	--
Nov. 11-20,	6604	59	2	5.6	239	--	--	--	--	--	--	11		4	86	5	--	1.1	--	76	73	--
Nov. 21-23,	11243	--	1	4.8	250	--	--	--	--	--	--	16		2	97	7	--	1.2	--	79	77	--
Nov. 24-30,	11252	--	--	--	--	--	--	--	--	--	--	--		--	--	--	--	--	--	--	--	--
Dec. 1-10,	40630	50	1	4.45	213	--	--	--	--	--	--	7.8		0	75	4	--	1.4	--	67	67	18
Dec. 11-15, 17-20,	16111	--	1	4.05	244	--	--	--	--	--	--	12		0	88	3	--	.5	--	66	66	24
Dec. 16,	16800	--	1	3.55	494	--	--	--	--	--	--	28		0	179	8	--	.2	--	122	122	56
Dec. 21-31,	8297	53	1	3.80	393	--	--	--	--	--	--	22		0	145	5	--	.6	--	103	103	38
Jan. 1-4, 1951	10685	48	1	3.80	414	--	--	--	--	--	--	21		0	156	5	--	.7	--	117	117	37
Jan. 5-10,	21800	48	2	3.80	238	--	--	--	--	--	--	7.2		0	84	4	--	.8	--	70	70	17
Jan. 11-20,	23970	49	3	4.40	221	--	--	--	--	--	--	--		0	86	3	--	.4	--	63	63	14
Jan. 21-31,	16404	--	5	4.25	259	--	--	--	--	--	--	--		0	100	3	--	.3	--	75	75	20
Feb. 1-10,	35700	51	4	4.45	207	--	--	--	--	--	--	--		0	76	1	--	.4	--	60	60	15
Feb. 11-20,	13590	51	4	4.00	319	--	--	--	--	--	--	--		0	117	4	--	.8	--	92	92	28
Feb. 21-28,	18956	53	5	4.45	246	--	--	--	--	--	--	--		0	97	3	--	.5	--	71	71	16
Mar. 1-10,	17548	57	5	4.35	269	--	--	--	--	--	--	--		0	102	3	--	.3	--	79	79	19
Mar. 11-17, 20,	12575	48	2	4.9	261	--	--	--	--	--	--	15		2	95	3	--	.9	--	72	70	--
Mar. 18-19,	8650	47	2	4.10	379	--	--	--	--	--	--	19		0	141	4	--	.8	--	107	107	26
Mar. 21-31,	16602	45	2	4.40	249	--	--	--	--	--	--	12		0	89	4	--	.8	--	72	72	13
Apr. 1-10,	21220	49	3	5.0	222	--	--	--	--	--	--	9.2		2	81	3	--	.9	--	71	69	--
Apr. 11-20,	32120	49	5	4.9	214	--	--	--	--	--	--	10		2	78	3	--	.9	--	66	64	--
Apr. 21-30,	12233	55	5	4.8	265	--	--	--	--	--	--	13		2	99	3	--	.9	--	82	80	--
May 1-10,	15120	61	8	4.40	271	--	--	--	--	--	--	14		0	104	2	--	.8	--	81	81	24
May 11-20,	11013	64	7	4.40	299	--	--	--	--	--	--	16		0	121	4	--	.8	--	97	97	25
May 21-31,	3893	67	5	3.95	444	--	--	--	--	--	--	29		0	182	5	--	1.0	--	129	129	37
June 1-10,	5264	69	4	3.60	552	--	--	--	--	--	--	35		0	208	5	--	.8	--	135	135	60
June 11-20,	29253	65	1	4.40	221	--	--	--	--	--	--	10		0	82	4	--	.7	--	68	68	12
June 21-30,	6600	73	2	4.00	319	--	--	--	--	--	--	21		0	128	5	--	.5	--	91	91	26
July 1-10,	8251	74	2	4.30	358	--	--	--	--	--	--	17		0	138	6	--	.3	--	113	113	22
July 11-20,	3236	76	4	4.15	428	--	--	--	--	--	--	26		0	169	5	--	.8	--	126	126	33
July 21-31,	4283	79	5	3.80	510	--	--	--	--	--	--	34		0	208	5	--	.9	--	150	150	33
Aug. 1-10,	1531	78	3	4.10	630	--	--	--	--	--	--	43		0	268	7	--	.8	--	196	196	32
Aug. 11-20,	1249	78	5	4.10	621	--	--	--	--	--	--	46		0	260	7	--	.8	--	182	182	31
Aug. 21-31,	1001	77	5	3.60	753	--	--	--	--	--	--	--		0	305	10	--	.8	--	188	188	57
Sept. 1-10,	1556	76	5	3.30	872	--	--	--	--	--	--	--		0	362	10	--	.8	--	212	212	68
Sept. 11-20,	1251	72	5	3.40	860	--	--	--	--	--	--	--		0	342	10	--	1.0	--	218	218	74
Sept. 21-30,	874	69	3	3.50	867	--	--	--	--	--	--	--		0	355	11	--	1.3	--	218	218	70
Average	11810	61	3	4.22	384	--	--	--	--	--	--	19			149	5	--	.8	--	108	108	31

YOUGHIOGHENY RIVER AT SUTERSVILLE, PA.

Chemical analyses, in parts per million, water year October 1949 to September 1950

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$		Total acidity as H_2SO_4
																				Total	Noncarbonate	
Oct. 1-10, 1949	1,169	63	3	4.00	218	—	—	—	—	—	—	—		0	76	3	—	.6	—	56	56	9
Oct. 11-20,	1,093	60	3	4.10	247	—	—	—	—	—	—	—		0	85	3	—	1.1	—	66	66	15
Oct. 21,22,24-29,	1,144	50	3	4.10	237	—	—	—	—	—	—	—		0	82	2	—	1.1	—	62	62	23
Oct. 23,30,31, Nov. 3,7,8,10,14,	1,434	49	5	4.9	177	—	—	—	—	—	—	—		2	68	4	—	1.2	—	54	52	—
Nov. 1,2,4-6,9,	1,895	46	5	4.5	198	—	—	—	—	—	—	—		1	74	3	—	1.4	—	59	58	—
Nov. 12,13,15-20,24, 26,	1,641	43	2	4.30	225	—	—	—	—	—	—	—		0	82	1	—	1.0	—	63	63	13
Nov. 21-23,25,27-30	2,468	39	5	5.5	161	—	—	—	—	—	—	—		3	57	4	—	1.4	—	50	48	—
Dec. 1-10,	2,430	36	5	5.4	154	—	—	—	—	—	—	—		4	54	2	—	1.9	—	48	45	—
Dec. 11-20,	4,612	38	5	6.0	172	—	—	—	—	—	—	—		8	48	10	—	2.0	—	58	51	—
Dec. 21-31,	4,298	41	5	6.2	138	—	—	—	—	—	—	—		5	46	3	—	1.8	—	47	43	—
Jan. 1-10, 1950	7,451	43	1	6.1	138	—	—	—	—	—	—	—		11	47	3	—	3.5	—	50	41	—
Jan. 11-20,	4,797	44	2	5.9	136	—	—	—	—	—	—	—		4	48	2	—	3.2	—	46	43	—
Jan. 21-31,	4,474	43	5	6.1	150	—	—	—	—	—	—	—		4	52	2	—	1.6	—	51	43	—
Feb. 1-10,	10,139	41	5	6.0	113	—	—	—	—	—	—	—		4	38	2	—	1.3	—	40	37	—
Feb. 11-20,	6,429	40	5	5.3	139	—	—	—	—	—	—	—		2	48	2	—	1.6	—	42	40	—
Feb. 21-28,	5,044	36	5	4.9	149	—	—	—	—	—	—	—		1	52	1	—	1.4	—	48	47	—
Mar. 1-10,	3,012	36	5	4.5	160	—	—	—	—	—	—	—		0	54	2	—	1.4	—	48	48	12
Mar. 11-20,	6,668	38	5	5.0	118	—	—	—	—	—	—	—		2	41	1	—	3.2	—	41	39	—
Mar. 21-31,	8,735	41	5	5.4	121	—	—	—	—	—	—	—		4	40	1	—	3.4	—	46	43	—
Apr. 1-10,	3,835	44	5	4.8	171	—	—	—	—	—	—	—		1	60	2	—	3.4	—	61	60	—
Apr. 11-14, 17-24,	1,849	44	—	4.20	273	—	—	—	—	—	—	—		0	99	2	—	2.8	—	74	74	17
Apr. 15-16,	1,640	38	—	5.5	115	—	—	—	—	—	—	—		4	38	1	—	3.7	—	42	39	—
Apr. 25-28,	8,060	—	—	5.5	117	—	—	—	—	—	—	—		4	39	2	—	3.4	—	42	39	—
Apr. 29, 30,	4,110	51	5	4.00	226	—	—	—	—	—	—	—		0	82	4	—	2.8	—	66	66	19
May 1-10,	4,122	55	2	4.6	144	—	—	—	—	—	—	—		4	51	3	—	2.0	—	41	38	—
May 11-20,	2,780	56	3	4.20	191	—	—	—	—	—	—	—		0	73	2	—	3.1	—	54	54	12
May 21,	2,340	56	—	3.65	273	—	—	—	—	—	—	—		0	101	3	—	4.1	—	75	75	21
May 22-31,	2,858	62	1	4.35	168	—	—	—	—	—	—	—		0	61	2	—	3.1	—	52	52	8
June 1-10,	3,955	61	2	4.9	144	—	—	—	—	—	—	—		4	52	3	—	1.9	—	46	43	—
June 11,15,16,19,20-	2,054	63	2	4.30	219	—	—	—	—	—	—	—		0	78	2	—	2.2	—	65	65	11
June 12,13,14,17,18-	2,100	61	5	4.9	141	—	—	—	—	—	—	—		2	51	1	—	2.0	—	46	44	—
June 21-23,27-30,	1,854	67	5	4.35	202	—	—	—	—	—	—	—		0	72	2	—	2.1	—	60	60	7
June 24-26,	2,740	67	10	5.8	120	—	—	—	—	—	—	—		4	40	2	—	2.5	—	40	37	—
July 1,	1,900	69	—	4.6	129	—	—	—	—	—	—	—		1	48	1	—	1.7	—	44	43	—
July 2-10,	1,957	67	5	4.45	216	—	—	—	—	—	—	—		0	76	1	—	2.4	—	65	65	7
July 11-20,	1,948	69	5	4.8	223	—	—	—	—	—	—	—		2	80	3	—	2.3	—	69	67	—
July 21-31,	1,432	69	5	4.45	238	—	—	—	—	—	—	—		0	85	2	—	2.0	—	69	69	10
Aug. 1-10,	1,529	68	1	4.25	231	—	—	—	—	—	—	11		0	83	1	—	1.6	—	63	63	10
Aug. 11-20,	1,355	68	1	4.20	228	—	—	—	—	—	—	11		0	83	1	—	1.4	—	63	63	11
Aug. 21,22,26-31,	1,095	71	1	4.25	241	—	—	—	—	—	—	11		0	87	1	—	1.5	—	67	67	19
Aug. 23-25,	1,033	69	1	3.90	325	—	—	—	—	—	—	19		0	117	2	—	1.4	—	79	79	24
Sept. 1-10,	1,124	67	0	4.25	272	—	—	—	—	—	—	—		0	102	3	—	1.7	—	74	74	8
Sept. 11-20,	1,422	66	0	4.05	289	—	—	—	—	—	—	—		0	107	4	—	1.7	—	74	74	12
Sept. 21,23,24,26-30	3,124	59	0	4.30	254	—	—	—	—	—	—	—		0	93	4	—	2.3	—	69	69	9
Sept. 22, 25,	6,945	58	—	6.2	160	—	—	—	—	—	—	—		8	53	2	—	2.2	—	53	46	—
Average	3,359	53	4	4.8	188	—	—	—	—	—	—	—		2	67	2	—	2.1	—	56	54	12

CASSELMAN RIVER AT HARNEDSVILLE, PA.

Chemical analyses, in parts per million, water year October 1949 to September 1950

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$		Total acidity as H_2SO_4
																				Total	Noncarbonate	
Oct. 1-10, 1949----	68	64	5	4.10	369	7.3	2.5	.05	1.0	34	9.4	4.2	2.1	0	144	3.8	.2	1.9	233	143	143	28
Oct. 11-20,--------	112	60	5	4.20	308	6.8	2.0	.03	.8	29	9.2	4.3	2.4	0	119	2.9	.2	1.1	193	126	126	21
Oct. 21-31,--------	133	52	5	4.35	270	6.8	1.6	.02	.9	25	9.0	3.4	1.8	0	104	2.2	.1	1.3	170	111	111	17
Nov. 1-10,--------	330	43	5	5.0	148	7.0	--	.03	.35	14	4.5	2.3	1.7	2	50	2.0	.0	2.0	95	53	52	—
Nov. 11-20,--------	220	44	5	4.5	176	6.8	--	.02	.40	16	5.5	2.4	1.4	0	61	1.5	.0	1.7	108	62	62	7
Nov. 21-30,--------	541	35	5	4.5	158	6.5	--	.02	.30	14	4.6	2.0	1.3	0	52	2.2	.0	2.6	94	54	54	6
Dec. 1-10,--------	587	33	5	5.1	120	6.6	--	.02	.30	11	3.5	1.6	1.1	2	38	1.5	.0	2.9	74	42	40	—
Dec. 11-20,--------	1,101	35	5	5.2	114	6.6	--	.07	--	10	3.7	1.4	1.1	1	38	1.5	.0	3.2	72	40	39	--
Dec. 21-31,--------	1,172	36	5	5.5	116	8.1	--	.07	.15	10	3.7	1.8	.9	2	37	1.2	.0	3.6	76	40	38	—
Jan. 1-12, 1950----	1,675	40	5	4.8	120	6.0	.3	.04	.2	11	3.7	1.6	.6	4	40	2.0	.0	2.3	71	43	39	--
Jan. 13-20,--------	829	36	5	4.10	184	6.5	1.4	.05	.4	14	5.4	2.0	1.2	0	63	1.0	.1	3.3	93	57	57	19
Jan. 21-30,--------	602	40	1	4.10	192	6.2	1.6	.07	.5	14	5.4	1.7	1.2	0	60	1.0	.0	2.5	101	57	57	18
Jan. 31, Feb. 1-3,-	3,666	36	5	5.5	93.1	--	--	--	--	--	--	1.9		2	28	2.0	--	3.2	--	32	30	--
Feb. 4-10,--------	1,780	36	25	4.05	170	6.5	1.6	.06	.4	11	2.7	1.8	.7	0	50	1.0	.0	3.5	83	39	39	22
Feb. 11-20,--------	1,626	36	5	4.05	170	6.5	1.3	.05	.4	12	2.8	1.5	1.0	0	51	.5	.0	3.2	84	41	41	19
Feb. 21-28,--------	946	32	3	3.80	216	7.0	1.7	.06	.4	13	4.0	2.2	1.4	0	65	.8	.1	4.3	104	49	49	27
Mar. 1-10,--------	609	33	1	3.70	238	7.3	.8	.04	.6	15	5.2	1.8	1.0	0	71	.8	.1	3.1	109	59	59	27
Mar. 11-12, 15-20--	1,163	34	1	3.80	183	7.3	.7	.04	.5	12	4.0	1.8	.8	0	55	.6	.1	4.0	85	46	46	19
Mar. 13-14,--------	3,456	35	5	4.7	92.4	--	--	--	--	--	--	2.4		1	32	2.0	--	1.6	--	33	32	--
Mar. 21-31,--------	2,815	37	1	4.00	147	6.2	.6	.04	.5	11	3.5	1.1	1.5	0	45	.9	.1	3.2	72	42	42	15
Apr. 1-10,--------	920	41	1	3.70	230	7.0	.6	.06	.4	14	4.8	1.1	.9	0	68	.5	.1	2.1	104	55	55	27
Apr. 11-20,--------	443	43	1	3.60	262	7.0	2.5	.29	.7	16	3.8	1.2	.9	0	81	2.0	.1	1.8	122	56	56	33
Apr. 21-24, 28-30,-	806	50	1	3.70	211	7.9	2.0	.06	.6	14	2.8	3.2		0	67	3.0	.1	2.2	103	46	46	24
Apr. 25-27,--------	2,768	48	5	4.7	99.1	--	--	--	--	--	--	2.2		1	31	2.0	--	2.4	--	33	32	--
May 1-10,----------	858	55	5	4.10	165	7.2	.5	.21	.3	13	3.4	1.3	1.1	0	54	1.8	.1	2.2	90	46	46	19
May 11-20,---------	648	58	5	4.00	190	7.4	.7	.21	.5	14	3.8	1.4	1.0	0	60	1.8	.1	1.8	98	51	51	20
May 21-31,---------	1,065	59	5	4.35	136	7.2	.3	.20	.3	12	3.0	1.2	1.0	0	44	1.8	.1	1.9	77	42	42	12
June 1-10,---------	593	66	5	4.20	176	7.6	.6	.19	.5	14	3.8	1.2	.9	0	58	1.5	.0	1.8	95	51	51	16
June 11-20,--------	432	65	5	4.10	206	7.8	.7	.16	.6	16	4.3	1.3	1.1	0	66	1.8	.0	4.1	110	58	58	21
June 21-30,--------	365	70	30	4.05	191	7.8	.6	.04	--	16	5.9	1.2	1.2	0	67	1.4	.0	2.2	117	64	64	20
July 1-10,---------	177	70	40	3.60	320	8.3	3.5	.06	--	23	4.9	2.4	1.2	0	107	1.5	.0	2.0	183	78	78	39
July 11,-----------	432	67	--	3.70	297	5.4	2.6	--	--	21	7.1	1.2	2.2	—	99	3.0	--	3.0	--	82	82	36
July 12-20,--------	296	70	0	4.20	192	5.2	1.2	.02	--	17	5.6	1.9	1.5	0	73	2.9	.1	3.0	115	65	65	16
July 21-31,--------	172	70	0	4.40	234	11	1.4	.01	.60	22	6.9	2.8	1.4	--	89	4.1	.1	2.0	147	83	83	18
Aug. 1-10,---------	176	70	0	4.10	220	5.2	1.5	.02	.90	19	6.5	1.9	1.4	--	85	2.8	.1	2.2	133	74	74	22
Aug. 11-20,--------	110	70	0	3.80	320	5.6	2.6	.04	1.0	28	9.7	3.1	1.5	--	127	3.5	.1	2.4	193	110	110	29
Aug. 21-31,--------	107	72	0	3.80	314	5.7	1.1	.07	1.5	26	8.3	2.6	1.9	--	116	3.5	.1	2.2	185	99	99	28
Sept. 1-10,--------	116	68	0	4.10	299	6.2	2.0	.03	.95	28	9.5	3.4	2.0	--	120	3.4	.2	2.4	185	109	109	26
Sept. 11-21,-------	145	65	0	3.80	353	5.5	2.5	.02	1.2	31	10	3.5	1.8	--	135	4.2	.2	2.2	210	118	118	33
Sept. 22-24,-------	2,708	57	0	5.2	93.9	5.1	.3	.08	.08	9.0	2.8	.8	1.9	2	37	2.2	.0	2.9	66	34	32	--
Sept. 25-30,-------	349	55	0	4.10	191	6.2	1.6	.03	.02	17	5.7	1.2	1.3	0	74	2.4	.1	2.7	110	66	66	20
Average-------	692	51	5	4.25	200	6.8	1.3	.07	.5	17	5.5	2.0	1.3	--	70	2.0	.1	2.5	121	65	63	22

BEAVER RIVER AT NEW BRIGHTON, PENNSYLVANIA

Chemical analyses, in parts per million, water year October 1949 to September 1950

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$	
																		Total	Noncarbonate
Oct. 1-10, 1949	610	66	15	7.0	509	--	--	--	--	--		53	146	27	--	4.2	--	181	138
Oct. 11-20,	516	64	20	7.0	472	--	--	--	--	--		81	115	24	--	4.0	--	172	106
Oct. 21-31,	389	55	20	7.1	505	--	--	--	--	--		86	121	29	--	4.9	--	186	116
Nov. 1-10,	383	50	2	7.0	558	--	--	--	--	--		98	124	36	--	7.2	--	204	124
Nov. 11-20,	716	51	2	7.0	574	--	--	--	--	--		104	125	39	--	6.1	--	208	123
Nov. 21-30,	784	44	1	6.7	628	--	--	--	--	--		76	158	41	--	6.8	--	226	164
Dec. 1-10,	931	43	5	6.4	648	--	--	--	--	--		65	187	43	--	7.3	--	236	183
Dec. 11-20,	1,668	42	5	6.9	555	--	--	--	--	--		43	148	38	--	7.0	--	187	152
Dec. 21-31,	1,899	44	3	6.8	434	--	--	--	--	--		38	115	28	--	6.4	--	154	123
Jan. 1-10, 1950	9,179	34	12	6.7	343	--	--	--	--	--		44	94	19	--	4.4	--	128	92
Jan. 11-20,	12,300	41	18	6.7	249	--	--	--	--	--		38	67	8	--	3.2	--	96	65
Jan. 21-31,	6,760	44	20	6.7	276	--	--	--	--	--		25	80	13	--	5.2	--	107	86
Feb. 1-10,	5,486	42	10	6.5	315	--	--	--	--	--		27	92	16	--	3.2	--	118	96
Feb. 11-20,	15,400	41	40	7.1	261	--	--	--	--	--		38	79	9	--	2.0	--	104	73
Feb. 21-28,	9,876	37	5	6.9	281	--	--	--	--	--		28	80	12	--	2.4	--	107	84
Mar. 1-10,	5,352	38	5	6.7	301	--	--	--	--	--		30	85	12	--	2.8	--	114	89
Mar. 11-20,	7,171	39	10	6.7	251	--	--	--	--	--		24	65	10	--	2.4	--	98	78
Mar. 21-31,	17,520	42	5	6.7	216	--	--	--	--	--		32	58	6.0	--	3.9	--	88	62
Apr. 1-10,	10,130	46	5	6.5	239	--	--	--	--	--		30	66	9.0	--	3.4	--	95	74
Apr. 11-20,	4,136	48	5	6.4	286	--	--	--	--	--		33	82	12	--	4.1	--	112	85
Apr. 21-30,	11,220	52	50	6.4	276	--	--	--	--	--		35	75	11	--	4.0	--	103	74
May 1-10,	5,813	61	10	6.4	272	--	--	--	--	--		33	74	10	--	3.7	--	104	77
May 11-20,	3,548	64	10	6.5	321	--	--	--	--	--		40	91	14	--	3.9	--	126	93
May 21-31,	3,169	69	1	6.5	335	--	--	--	--	--		42	87	16	--	6.0	--	127	93
June 1-10,	4,036	71	40	6.2	302	--	--	--	--	--		40	77	12	--	6.0	--	114	81
June 11-20,	3,047	73	20	6.3	326	--	--	--	--	--		40	85	14	--	6.3	--	123	90
June 21-30,	2,016	77	10	6.7	406	--	--	--	--	--		11	112	21	--	9.2	--	150	141
July 1-10,	2,119	78	10	6.8	397	--	--	--	--	--		43	110	18	--	4.2	--	147	112
July 11-20,	1,803	78	5	6.8	414	--	--	--	--	--		37	114	18	--	7.0	--	152	122
July 21-31,	1,643	78	5	6.6	417	--	--	--	--	--		23	116	20	--	6.6	--	148	129
Aug. 1-10,	1,526	76	5	6.2	428	--	--	--	--	--		17	125	21	--	7.2	--	150	136
Aug. 11-20,	1,795	77	5	6.2	424	--	--	--	--	--		15	125	21	--	7.7	--	143	127
Aug. 21-31,	1,552	76	3	6.2	399	--	--	--	--	--		17	123	17	--	6.1	--	139	125
Sept. 1-10,	1,865	75	4	6.5	395	--	--	--	--	--		25	118	19	--	5.7	--	145	124
Sept. 11-20,	2,044	72	5	6.3	389	--	--	--	--	--		21	116	18	--	5.8	--	140	123
Sept. 21-30,	1,472	65	4	6.4	424	--	--	--	--	--		19	144	23	--	6.3	--	151	135
Average	4,419	57	11	6.6	395	--	--	--	--	--		40	105	19	--	5.2	--	141	108

BEAVER RIVER AT NEW BRIGHTON, PA.

Chemical analyses, in parts per million, water year October 1950 to September 1951

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$	
																		Total	Noncarbonate
Oct. 1-10, 1950	----	66	3	6.2	471	--	--	--	--	--		10	164	25	--	7.2	--	167	159
Oct. 11-20,	----	61	1	6.6	479	--	--	--	--	18		30	137	28	--	8.5	--	174	149
Oct. 21-31,	----	61	4	6.3	520	--	--	--	--	17		19	153	29	--	10	--	186	170
Nov. 1-10,	----	55	4	6.6	432	--	--	--	--	16		27	115	26	--	7.5	--	149	127
Nov. 11-20,	----	47	3	6.7	426	--	--	--	--	17		34	110	25	--	6.9	--	147	119
Nov. 21-30,	4420	38	4	6.7	310	--	--	--	--	9.8		27	76	17	--	5.0	--	108	86
Dec. 1-10,	20198	36	20	6.9	225	--	--	--	--	7.0		30	59	9	--	3.2	--	86	61
Dec. 11-20,	4922	37	10	6.8	303	--	--	--	--	11		32	88	14	--	5.3	--	119	93
Dec. 21-31,	3204	37	10	6.9	352	--	--	--	--	4.8		32	104	17	--	6.3	--	153	127
Jan. 1-10, 1951	11499	37	1	6.6	270	--	--	--	--	--		25	68	14	--	4.4	--	100	80
Jan. 11-20,	10831	38	2	6.7	258	--	--	--	--	--		27	68	11	--	3.6	--	100	78
Jan. 21-31,	6297	39	1	6.9	264	--	--	--	--	--		28	70	12	--	4.7	--	101	78
Feb. 1-10,	4905	36	10	6.8	286	--	--	--	--	13		30	82	14	--	5.8	--	107	82
Feb. 11-20,	15580	38	25	6.8	218	--	--	--	--	7.3		27	61	9	--	3.3	--	85	63
Feb. 21-28,	13844	40	8	7.0	232	--	--	--	--	--		30	59	9	--	4.5	--	94	69
Mar. 1-10,	18108	44	15	6.8	228	--	--	--	--	--		28	61	9	--	3.9	--	88	65
Mar. 11-20,	8957	42	12	7.0	263	--	--	--	--	--		35	71	10	--	4.0	--	109	80
Mar. 21-31,	11451	43	15	7.0	237	--	--	--	--	--		34	61	9	--	3.7	--	96	68
Apr. 1-10,	8661	48	12	6.8	247	--	--	--	--	6.0		32	66	10	--	3.8	--	99	73
Apr. 11-20,	7821	48	10	6.7	253	--	--	--	--	7.0		35	68	10	--	3.2	--	101	72
Apr. 21-30,	7776	56	18	6.6	255	--	--	--	--	7.9		33	70	11	--	3.5	--	101	74
May 1-10,	4492	62	10	6.8	284	--	--	--	--	9.4		39	77	12	--	3.1	--	111	79
May 11-20,	3594	64	13	6.7	321	--	--	--	--	11		44	90	13	--	3.9	--	128	92
May 21-31,	2075	69	15	6.7	401	--	--	--	--	15		43	112	20	--	4.6	--	151	116
June 1-10,	----	74	15	6.8	425	--	--	--	--	13		47	118	21	--	5.2	--	162	140
June 11-20,	----	72	15	6.8	352	--	--	--	--	13		38	94	19	--	5.7	--	132	101
June 21-30,	----	79	15	6.6	429	--	--	--	--	16		36	124	23	--	4.4	--	159	130
July 1-10,	----	73	20	6.9	350	--	--	--	--	13		49	92	17	--	5.0	--	136	96
July 11-20,	----	82	20	6.9	399	--	--	--	--	14		44	110	20	--	4.8	--	152	116
July 21-31,	----	81	5	6.9	388	--	--	--	--	11		40	108	20	--	6.5	--	154	120
Aug. 1-10,	----	78	5	6.9	399	--	--	--	--	11		39	112	20	--	7.8	--	160	128
Aug. 11-20,	----	81	5	6.7	456	--	--	--	--	15		28	140	24	--	8.5	--	176	153
Aug. 21-31,	----	76	5	6.7	474	--	--	--	--	13		32	142	26	--	9.2	--	190	164
Sept. 1-10,	----	76	10	6.7	451	--	--	--	--	--		20	130	23	--	9.2	--	156	140
Sept. 11-20,	----	72	13	6.9	460	--	--	--	--	--		52	130	25	--	3.3	--	180	137
Sept. 21-30,	----	68	15	6.9	490	--	--	--	--	--		48	137	30	--	3.5	--	190	151
Average	-----	57	10	6.8	350	--	--	--	--	12		33	98	18	--	5.4	--	134	107

Chemical analyses, in parts per million

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$		Total acidity as H_2SO_4
																				Total	Non-carbonate	
BUSHKILL CREEK AT SHOEMAKERS																						
Oct. 17, 1950-----	40.5	--	12	7.0	37.8	3.9	--	0.02	--	3.6	1.4	.9	.6	10	6.5	1.5	0.3	.3	31	15	7	--
Dec. 1,-----------	474	35	28	6.1	34.5	3.9	--	.02	--	3.2	1.2	1.0	.6	5	8.6	1.8	.2	.5	34	13	9	--
Dec. 30,----------	189	31	14	6.4	33.0	4.4	--	.01	--	3.0	1.1	1.0	.6	5	8.3	1.5	.2	.2	30	12	8	--
Feb. 1, 1951------	411	32	10	7.1	30.9	2.8	--	.08	--	2.8	1.0	3.1	1.9	5	12	1.5	.0	2.5	31	15	10	--
Mar. 6,-----------	371	34	4	6.6	31.8	5.1	--	.01	--	2.6	1.0	1.6	.5	5	8.6	1.0	.1	.1	25	11	6	--
Apr. 12,----------	382	46	12	6.5	30.5	3.4	--	.01	--	2.6	1.1	.6	1.0	5	7.2	.9	.1	.4	23	11	7	--
May 17,-----------	103	60	17	7.0	33.0	3.0	--	.01	--	2.8	1.2	1.1	1.0	7	7.5	1.0	.1	.4	24	12	6	--
June 19,----------	148	66	26	6.8	31.2	4.4	--	.01	--	2.9	.9	2.1	.6	8	6.7	1.1	.0	.7	28	11	4	--
July 31,----------	104	74	30	6.9	39.7	4.2	--	.02	--	3.4	1.7	1.8		8	6.9	2.4	.1	2.5	33	16	9	--
BUSHKILL CREEK AT BUSHKILL FALLS																						
Oct. 27, 1950-----	--	--	19	6.8	43.6	--	--	--	--	--	--	3.9		15	7.7	2.5	--	.7	--	16	4	--
BROADHEAD CREEK AT STROUDSBURG																						
Jan. 26, 1951-----	920a/	35	12	6.5	43.7	3.0	--	0.01	--	4.0	1.0	5.4		6	11	6.0	0.1	1.0	36	14	9	--
POCONO CREEK AT STROUDSBURG																						
Jan. 26, 1951-----	270a/	36	17	6.5	43.4	3.6	--	0.01	--	3.5	1.0	4.7		6	1.0	4.8	0.1	1.0	34	13	8	--
BUSHKILL CREEK AT EASTON																						
Nov. 10, 1949-----	--	52	7	7.7	470	--	--	--	--	--	--	18		171	86	8.5	--	5.2	--	207	67	--
LEHIGH RIVER AT WALNUTPORT																						
Feb. 21, 1950-----	2,050	42	3	6.1	87.8	4.9	--	0.02	--	7.6	3.4	2.3		6	29	2.0	0.0	3.0	54	33	28	--
Mar. 8,-----------	1,880	36	3	4.6	101	5.1	1.7	.03	0.3	7.0	1.8	3.5		4	33	2.5	.0	1.6	57	25	22	14
Apr. 19,----------	1,610	55	2	5.8	97.4	4.1	--	.02	--	7.0	3.1	6.0		8	32	1.5	.0	.6	66	30	24	--
May 17,-----------	1,280	56	2	6.2	95.0	3.9	--	.02	--	6.8	3.1	5.4		8	33	1.5	.0	.6	69	30	23	--
May 31,-----------	2,640	--	3	6.6	82.2	4.4	--	.02	--	6.4	2.6	6.0		10	26	2.0	.0	1.0	59	27	18	--
June 15,----------	2,030	--	3	5.4	81.2	4.8	--	.01	.1	6.6	2.6	3.5		6	26	2.0	.0	1.1	47	27	22	--
June 29,----------	713	73	2	5.5	127	5.4	--	.04	0.4	8.0	4.3	7.4		6	45	1.5	.0	.9	77	38	33	--
July 13,----------	1,640	70	3	5.3	85.7	5.0	--	.01	.2	6.7	2.9	4.4		7	28	2.0	.0	1.7	52	29	23	--
July 26,----------	860	69	2	5.5	115	5.4	--	.01	.3	8.5	3.7	5.4		5	41	3.0	.0	1.3	71	36	32	--
Aug. 8,-----------	496	66	2	5.5	133	5.2	--	.05	.2	9.2	3.8	11		9	48	3.0	.0	1.5	85	39	31	--
Aug. 30,----------	426	74	4	6.9	163	5.2	--	.03	.4	11	4.2	12		10	61	2.0	.0	1.3	108	45	36	--
Sept. 13,---------	902	62	3	6.0	131	6.3	--	.01	.3	8.6	3.4	13		11	45	2.5	.0	2.0	83	35	26	--
Sept. 27,---------	408	66	4	6.1	153	5.5	--	.05	.7	10	4.3	12		9	56	3.0	.0	1.7	97	43	35	--

a/ Estimated

MISCELLANEOUS ANALYSES OF STREAMS IN DELAWARE RIVER BASIN

Chemical analyses, in parts per million

Data of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$	
																		Total	Noncarbonate
LEHIGH RIVER AT GLENDON																			
Mar. 29, 1950	14,400a/	--	17	6.9	99.1	--	--	--	--	4.3		17	24	3.5	--	4.4	--	38	24
Aug. 18,	690a/	--	12	6.9	320	--	--	--	--	13		84	54	14	--	8.3	--	123	54
Oct. 27,	--	58	3	6.8	282	--	--	--	--	16		62	59	12	--	11	--	104	53
Apr. 19, 1951	2,350a/	--	4	7.2	147	--	--	--	--	4.9		33	29	4.0	--	4.6	--	56	29
TINICUM CREEK NR. TINICUM																			
Aug. 16, 1950	1.3a/	76	8	7.8	207	--	--	--	--	11		68	43	5	--	.6	--	84	28
TOHICKON CREEK NR. POINT PLEASANT																			
Aug. 16, 1950	2.6a/	80	10	8.3	270	4.2	0.19	25	10	13		54	45	10	0.1	.6	166	104	34

a/ Estimated

Chemical analyses, in parts per million

Date of collection	Discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Non-carbonate
TOHICKON CREEK AT TOHICKON																			
Aug. 16, 1950-----	1.6	74	9	8.0	401	5.6	.19	37	13	24		86	69	24	.1	.8	255	146	54
ROCK RUN CREEK NR. FALLINGSTON																			
Aug. 16, 1950-----	---	67	8	3.75	354	7.6	.16	17	9.3	4.7	3.0	0	143	16	.1	.9	228	159	159
Mar. 6, 1951------	---	41	8	4.4	188	6.9	.14	10	6.5	7.8	5.4	0	60	5.5	.1	3.1	130	52	52
COMMON CREEK AT TULLYTOWN																			
May 4, 1950-------	11.8	60	6	5.8	158	5.6	.23	11	5.7	5.1	2.5	2	48	8	.2	2.8	100	51	49
May 19,-----------	---	54	33	4.8	122	6.2	.36	8.7	4.2	4.0	---	4	40	4.1	.2	2.0	92	39	36
June 7,-----------	6.6	69	13	6.5	136	6.7	.81	9.4	5.0	5.8	2.1	11	36	7.2	.2	3.9	99	44	35
June 23,----------	2.3	65	4	4.6	204	7.6	.14	13	7.6	8.0	3.0	3	61	9.0	.2	5.8	126	64	61
July 28,----------	---	71	6	4.4	236	9.1	.14	16	8.4	11		0	74	11	.2	6.8	165	74	74
Aug. 16,----------	---	67	7	4.3	225	8.4	.12	14	8.7	7.4	3.0	0	69	10	.1	10	142	80	80
MILL CREEK AT BRISTOL																			
June 7, 1950------	13	--	18	6.7	119	8.6	.69	8.7	4.2	3.2	1.5	16	20	7.0	.2	5.4	90	39	26
Aug. 16,----------	---	67	26	6.4	122	9.6	.30	8.8	4.4	5.2	2.2	25	18	8.8	.1	5.8	88	40	20
VAN SCIVER LAKE NR. TULLYTOWN																			
Aug. 16, 1950-----	---	72	7	6.5	203	3.4	.17	17	8.7	6.1	1.4	33	50	12	.1	.2	129	78	51
NESHAMINY CREEK NR. LANGHORNE																			
May 19, 1950------	680	55	26	6.9	174	8.4	.22	14	5.8	10		42	31	7.1	.2	5.4	116	59	24
June 8,-----------	129	--	12	8.3	184	7.4	.12	16	6.4	7.6	2.0	47	34	7.4	.2	4.1	125	66	28
June 23,----------	74	72	7	7.7	209	4.1	.22	17	6.8	9.8	2.2	59	31	10	.1	2.9	121	70	22
July 28.----------	67	77	8	7.8	191	5.6	.14	16	5.7	12		51	31	9.2	.2	3.4	117	63	22
Aug. 16,----------	46	74	12	8.4	174	5.4	.13	15	5.7	10	2.6	33	30	8.1	.1	3.6	106	61	17
NESHAMINY CREEK NR. RUSHLAND																			
Aug. 16, 1950-----	29[b]/	77	8	8.7	210	4.3	.08	16	6.1	13		27[a]/	31	12	.1	33	127	65	23
POQUESSING CREEK AT PHILADELPHIA																			
July 28. 1950-----	7.25	--	35	6.9	180	12	.20	12	4.6	11	2.3	28	20	16	.1	13	128	49	26

a/ CO_3 12 ppm

b/ Estimated

DELAWARE RIVER BASIN

SCHUYLKILL RIVER AT PORT CARBON, PA.

Chemical analyses, in parts per million, water year October 1949 to September 1950

Date of collection	Mean discharge (second feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solide	Hardnssa as $CaCO_3$		Total acidity as H_2SO_4
																				Total	Non carbonate	
Oct. 14, 1949	8.2	54	7	3.30	986	13	8.6	0.54	6.7	69	42	8.7		0	434	4.0	0.0	0.6	702	345	345	136
Jan. 6, 1950	52	48	4	3.40	649	12	5.8	.09	4.5	44	25	10		0	279	2.0	.0	.4	431	213	213	104
Jan. 19	52	41	6	3.40	634	12	4.3	.27	3.9	48	25	10		0	281	1.0	.0	.3	422	223	223	84
Feb. 3	68	37	5	3.85	522	9.8	7.8	.16	2.7	35	20	6.3		0	220	5.0	.0	1.4	328	170	170	70
Feb. 15	166	40	3	3.85	417	9.0	6.5	.10	2.2	30	17	5.5		0	198	3.0	.0	1.3	276	145	145	65
Mar. 15	63	37	2	3.70	608	11	8.9	.18	3.1	42	26	8.5		0	287	3.0	.0	.7	414	212	212	92
Mar. 27	183	43	2	3.90	465	9.2	7.8	.12	2.3	32	19	7.1		0	229	2.5	.0	.9	309	158	158	70
Apr. 11	60	45	2	3.85	681	12	13	.52	3.7	47	30	7.8		0	322	3.0	.0	.4	472	241	241	100
Apr. 24	47	50	2	4.35	624	12	8.7	.20	3.7	46	28	8.4		0	287	4.5	.0	.6	454	230	230	116
May 3	57	52	2	4.40	562	12	7.3	.17	3.1	38	23	7.7		0	248	5.0	.0	.6	382	189	189	84
May 23	56	57	3	4.10	557	11	4.9	.17	3.0	39	23	5.8		0	240	3.5	.0	.6	356	192	192	80
June 6	96	68	3	4.15	530	11	4.7	.07	2.6	40	22	5.8		0	229	2.5	.0	.4	344	190	190	72
June 22	33	70	2	4.25	757	10	9.6	.24	3.9	51	32	10		0	331	3.5	.0	.3	492	259	259	192
July 6	102	67	2	4.35	602	9.3	12	.29	2.8	38	23	6.9		0	259	4.0	.0	.3	404	189	189	156
July 25	63	62	2	4.40	572	8.8	9.9	.18	3.2	40	21	10		0	250	4.0	.0	.3	389	186	186	136
Aug. 7	26	63	2	3.60	788	15	7.9	.39	4.5	58	35	9.0		0	355	3.0	.0	.6	544	289	289	198
Aug. 21	40	64	2	3.40	791	15	16	.31	4.7	48	30	8.4		0	354	5.0	.0	1.2	512	243	243	236
Sept. 11	35	66	4	3.50	755	14	14	.20	4.0	46	29	9.8		0	326	4.5	.0	1.0	498	234	234	200
Sept. 25	18	58	3	3.60	878	16	13	.18	4.8	60	36	10		0	391	6.0	.0	.5	575	298	298	206

Chemical analyses, in parts per million

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$		Total acidity as H_2SO_4
																				Total	Noncarbonate	
SCHUYLKILL RIVER AT POTTSVILLE																						
Oct. 4, 1949	27	56	10	4.6	1,020	14	7.3	0.17	7.9	92	52	26	--	2	533	6.0	0.0	0.8	871	491	489	96
Oct. 18,	25	53	5	4.6	1,050	14	--	--	--	--	--	--	--	4	577	6.0	.0	.4	--	498	--	--
Oct. 25,	24	48	5	4.25	1,110	14	--	--	--	--	--	--	--	0	615	6.0	.0	.3	--	552	--	110
Oct. 10, 1950	121	58	5	3.70	544	12	--	--	--	--	--	--	--	0	253	4.0	.0	.8	--	248	248	152
Oct. 17,	54	47	5	3.50	836	16	17	0.78	6.2	55	40	9.3	--	0	424	6.0	.0	1.0	624	302	302	294
Oct. 24,	50	51	2	3.70	903	17	--	.84	--	--	--	--	--	0	461	3.5	.0	.5	--	340	340	302
Oct. 2, 1951	42	56	4	3.30	1,010	22	--	--	--	--	--	--	--	0	520	5.0	.0	1.1	--	340	340	320
Oct. 9,	59	50	5	3.20	1,000	23	21	2.7	6.7	54	42	22	--	0	484	16	.0	1.2	738	307	307	312
Oct. 16,	50	52	4	3.25	1,160	27	--	--	--	--	--	--	--	0	600	4.5	.0	1.7	--	415	415	404
Oct. 21, 1952	29	48	5	3.70	948	15	--	--	--	--	--	--	--	0	460	17	--	1.3	--	425	425	232
SCHUYLKILL RIVER AT MOUNT CARBON																						
Oct. 4, 1949	31	57	20	4.8	856	12	4.3	4.1	6.1	81	40	25	--	3	461	7.0	.0	1.5	682	413	410	56
Oct. 18,	28	54	35	6.5	948	14	--	--	--	--	--	--	--	8	484	5.0	.0	2.0	--	436	--	--
Oct. 25,	27	50	10	4.8	916	12	--	--	--	--	--	--	--	5	466	7.0	.0	.4	--	444	--	38
Oct. 10,	138	58	5	4.35	550	12	--	--	--	--	--	--	--	0	270	3.5	.0	1.2	--	256	256	140
Oct. 17,	61	50	5	4.20	824	15	8.9	.17	6.0	68	43	19	--	0	429	8.0	.0	1.1	650	346	346	206
Oct. 24,	57	52	3	4.6	851	15	--	.12	--	--	--	--	--	4	439	5.0	.0	.5	--	365	362	224
Oct. 2, 1951	48	57	4	3.55	892	21	--	--	--	--	--	--	--	0	464	6.0	.0	1.1	--	326	326	280
Oct. 9,	67	51	10	3.50	872	21	16	1.2	6.6	70	43	11	--	0	469	5.0	.0	.9	706	351	351	258
Oct. 16,	57	53	32	3.70	1,020	22	--	--	--	--	--	--	--	0	567	4.5	.0	1.0	--	425	425	312
Oct. 21, 1952	33	48	15	6.1	897	12	--	--	--	--	--	--	--	26	420	16	--	1.6	--	420	399	--
SCHUYLKILL RIVER AT PORT CLINTON																						
Oct. 4, 1949	65	59	5	4.8	683	11	2.8	.11	4.6	68	34	19	--	4	347	6.0	.0	.8	514	334	330	46
Oct. 18,	63	53	6	5.1	770	9.2	--	--	--	--	--	--	--	6	382	7.0	.0	.5	--	352	--	--
Oct. 25,	56	48	5	4.8	782	10	--	--	--	--	--	--	--	7	397	7.0	.0	.6	--	352	--	38
Oct. 10, 1950	523	59	3	5.0	297	7.3	--	--	--	--	--	--	--	4	121	6.0	.0	2.0	--	114	111	32
Oct. 17,	182	--	2	4.8	424	8.8	2.6	.08	2.2	35	19	11	--	2	187	7.0	.0	1.9	296	165	164	102
Oct. 24,	123	53	2	5.1	365	7.8	--	.01	--	--	--	--	--	7	155	4.0	.0	1.5	--	150	144	46
Oct. 2, 1951	110	62	3	4.05	1,010	17	--	--	--	--	--	--	--	0	547	9.0	.0	1.1	--	447	447	232
Oct. 9,	169	56	6	3.90	981	16	7.2	.27	6.6	83	55	34	--	0	534	6.0	.0	1.1	791	433	433	218
Oct. 16,	149	54	4	4.25	816	14	--	--	--	--	--	--	--	0	416	7.0	.0	1.7	--	366	366	152
Oct. 21, 1952	89	48	5	4.30	860	13	--	--	--	--	--	--	--	0	420	7.0	--	1.2	--	380	380	140
SCHUYLKILL RIVER AT HAMBURG																						
Oct. 4, 1949	200	62	5	4.8	771	12	14	.19	5.2	66	32	19	--	2	399	6.0	.0	1.6	601	384	382	90
Oct. 18,	136	57	5	4.35	898	12	--	--	--	--	--	--	--	0	474	6.0	.0	1.0	--	456	--	100
Oct. 25,	139	53	5	4.40	925	13	--	--	--	--	--	--	--	0	500	6.0	.0	1.0	--	472	--	96
Oct. 10, 1950	988	60	3	4.45	412	8.1	--	--	--	--	--	--	--	0	182	5.0	.0	1.9	--	148	148	84
Oct. 17,	341	55	15	4.10	509	9.9	7.1	.36	2.8	38	22	9.7	--	0	231	5.5	.0	4.1	342	185	185	132
Oct. 24,	271	54	2	4.40	499	9.6	--	.12	--	--	--	--	--	0	226	3.5	.0	2.4	--	180	180	130
Oct. 2, 1951	170	63	2	4.10	939	16	--	--	--	--	--	--	--	0	508	8.0	.0	2.3	--	408	408	256
Oct. 9,	312	58	6	3.75	772	13	11	.45	4.7	62	40	12	--	0	399	6.5	.0	1.7	587	319	319	190
Oct. 16,	261	57	4	3.60	913	15	--	--	--	--	--	--	--	0	459	6.0	.0	1.8	--	395	395	258
Oct. 21, 1952	180	49	5	4.00	890	14	--	--	--	--	--	--	--	0	447	8.0	--	1.1	--	390	390	270

MISCELLANEOUS ANALYSES OF STREAMS IN DELAWARE RIVER BASIN

Chemical analyses, in parts per million

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Noncarbonate	Total acidity as H_2SO_4
SCHUYLKILL RIVER AT BERNE																						
Oct. 4, 1949	206	63	5	4.8	586	13	13	0.24	5.5	66	32	20	--	2	399	6.0	0.0	1.5	586	379	378	82
Oct. 18,	140	56	5	4.45	886	12	--	--	--	--	--	--	--	0	471	6.0	.0	1.0	--	424	--	88
Oct. 25,	143	51	4	4.45	906	12	--	--	--	--	--	--	--	0	494	6.0	.0	1.0	--	424	--	94
Oct. 10, 1950	1,020	61	3	4.30	414	8.1	--	--	--	--	--	--	--	0	186	3.0	.0	.5	--	154	154	82
Oct. 17,	352	55	15	4.20	499	10	5.5	.25	2.9	39	22	10	--	0	229	4.0	.0	.8	348	188	188	97
Oct. 24,	280	54	2	4.20	499	9.8	--	.05	--	--	--	--	--	0	228	4.0	.0	.7	--	188	188	116
Oct. 2, 1951	176	64	3	4.00	939	16	--	--	--	--	--	--	--	0	507	7.5	.0	2.0	--	398	398	250
Oct. 9,	322	58	5	3.85	767	13	7.1	.44	4.8	63	40	19	--	0	393	6.0	.0	1.7	581	322	322	188
Oct. 16,	269	56	6	3.65	898	16	--	--	--	--	--	--	--	0	458	6.5	.0	2.2	--	385	385	254
Oct. 21, 1952	186	49	5	4.00	879	12	--	--	--	--	--	--	--	0	440	6.0	--	2.0	--	380	380	264
SCHUYLKILL RIVER AT LEESPORT																						
Oct. 4, 1949	163	61	4	4.6	700	12	6.5	.16	5.1	62	35	20	--	4	362	6.0	.0	2.3	542	344	341	--
Oct. 18,	132	--	5	4.7	826	12	--	--	--	--	--	--	--	8	428	6.0	.0	1.6	--	400	--	--
Oct. 25,	114	50	5	4.7	861	12	--	--	--	--	--	--	--	5	447	6.0	.0	1.4	--	384	--	72
Oct. 10, 1950	1,200	60	2	4.35	478	8.7	--	--	--	--	--	--	--	0	222	4.0	.0	.6	--	185	185	106
Oct. 17,	374	56	5	4.40	457	10	5.6	.21	2.6	37	22	9.3	--	0	217	4.5	.0	1.0	323	183	183	85
Oct. 24,	348	54	1	4.5	501	10	--	.05	--	--	--	--	--	0	233	4.0	.0	1.0	--	192	192	103
Oct. 2, 1951	188	63	4	4.25	894	16	--	--	--	--	--	--	--	0	483	7.5	.0	2.5	--	384	384	228
Oct. 9,	378	58	6	3.90	778	13	8.2	.36	5.0	63	41	19	--	0	402	6.0	.0	2.0	612	326	326	180
Oct. 16,	279	56	5	4.05	839	20	--	--	--	--	--	--	--	0	426	6.0	.0	2.5	--	356	356	216
Oct. 21, 1952	204	49	5	4.20	817	12	--	--	--	--	--	--	--	0	400	7.0	--	2.0	--	360	360	244
SCHUYLKILL RIVER NEAR MUHLENBERG STATION																						
Oct. 4, 1949	238	64	5	6.8	464	13	--	.02	--	44	19	9.5	--	21	192	4.0	.0	1.3	311	188	171	--
Oct. 18,	189	59	5	7.0	597	9.9	--	--	--	--	--	--	--	18	269	5.5	.0	2.3	--	268	--	--
Oct. 25,	154	54	5	7.0	644	8.9	--	--	--	--	--	--	--	25	299	4.5	.0	2.7	--	292	--	--
SCHUYLKILL RIVER TWO MILES BELOW ANGELICA CREEK NEAR READING																						
Oct. 4, 1949	337	66	5	6.7	449	6.5	---	.04	--	44	19	12	--	56	144	12	.0	7.2	289	188	142	--
Oct. 18,	262	63	10	6.9	551	9.5	--	--	--	--	--	--	--	66	179	20	.1	4.4	--	220	--	--
Oct. 25,	284	--	15	6.9	591	8.8	--	--	--	--	--	--	--	96	199	16	.0	.7	--	244	--	--
SCHUYLKILL RIVER AT MONOCACY																						
Oct. 5, 1949	402	65	5	6.8	429	7.0	--	.03	--	42	18	15	--	56	138	14	.0	6.0	276	179	133	--
Oct. 19,	314	60	10	7.1	511	9.4	--	--	--	--	--	--	--	66	166	17	.0	10	--	212	--	--
Oct. 26,	306	57	8	7.0	518	9.4	--	--	--	--	--	--	--	72	176	12	.0	9.6	--	218	--	--
Oct. 11, 1950	1,350	61	4	6.8	475	8.8	--	--	--	--	--	--	--	30	191	9.0	.0	3.4	--	204	--	--
Oct. 18,	610	59	8	7.1	385	8.4	--	.20	1.4	37	16	16	--	42	130	11	.0	4.5	255	158	124	--
Oct. 25,	650	58	8	7.1	399	8.4	--	--	--	--	--	--	--	38	141	14	.0	5.2	--	156	125	--
Oct. 3, 1951	475	72	5	7.2	590	9.2	--	--	--	--	--	--	--	28	241	14	.0	5.8	--	254	231	--
Oct. 10,	651	60	10	6.1	595	10	--	.05	2.1	54	20	16	--	5	259	12	.0	7.1	420	258	254	--
Oct. 17,	500	64	5	7.0	514	8.8	--	--	--	--	--	--	--	35	200	14	.0	4.2	--	249	220	--
Oct. 22, 1952	588	54	15	7.0	540	8.8	--	--	--	--	--	--	--	72	172	18	--	6.0	--	220	161	--

Chemical analyses, in parts per million

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$		Total acidity as H_2SO_4
																				Total	Noncarbonate	
SCHUYLKILL RIVER AT STOWE																						
Oct. 5, 1949	414	65	10	6.9	435	8.0	--	0.02	--	42	18	17	--	55	137	13	0.0	6.2	276	179	133	--
Oct. 19,	324	58	7	7.3	489	8.4	--	--	--	--	--	--	--	64	168	10	.0	8.1	--	210	--	--
Oct. 26,	315	55	8	7.1	501	7.6	--	--	--	--	--	--	--	72	174	11	.0	9.0	--	214	--	--
SCHUYLKILL RIVER AT SANATOGA																						
Oct. 5, 1949	465	66	10	7.3	424	5.5	--	.09	--	42	19	12	--	60	135	11	.1	7.4	258	183	134	--
Oct. 19,	361	59	5	7.0	479	8.8	--	--	--	--	--	--	--	73	157	10	.0	7.2	--	204	--	--
Oct. 26,	346	55	10	7.1	485	12	--	--	--	--	--	--	--	74	157	12	.1	6.0	--	201	--	--
Oct. 11, 1950	1,680	61	8	7.1	498	9.4	--	--	--	--	--	--	--	44	196	7.0	.0	6.0	--	223	187	--
Oct. 18,	798	58	7	7.3	369	8.8	--	.05	.2	36	14	15	--	48	117	10	.0	5.0	242	147	108	--
Oct. 25,	913	57	7	6.9	365	8.7	--	--	--	--	--	--	--	41	123	10	.0	6.2	--	156	122	--
Oct. 3, 1951	544	70	4	7.3	549	9.2	--	--	--	--	--	--	--	36	218	11	.0	6.3	--	229	200	--
Oct. 10,	801	58	2	6.9	559	10	--	.05	2.2	51	28	15	--	10	241	9.0	.0	7.8	414	242	234	--
Oct. 17,	639	63	6	6.9	475	9.0	--	--	--	--	--	--	--	36	175	12	.0	5.9	--	209	180	--
Oct. 22, 1952	700	51	10	7.2	514	8.6	--	--	--	--	--	--	--	64	171	11	--	7.3	--	218	166	--
SCHUYLKILL RIVER ABOVE PHOENIXVILLE																						
Oct. 11, 1950	1,700	62	7	7.1	441	9.5	--	--	--	--	--	--	--	66	146	9.5	.0	6.7	--	186	132	--
Oct. 18,	819	59	5	7.2	342	7.9	--	.04	.1	34	14	11	--	45	114	8.0	.0	5.6	228	142	106	--
Oct. 25,	936	58	8	7.2	320	8.8	--	--	--	--	--	--	--	43	99	9.5	.0	6.7	--	132	97	--
Oct. 3, 1951	558	69	5	7.1	566	6.8	--	--	--	--	--	--	--	36	234	11	.0	6.8	--	245	216	--
Oct. 10,	821	57	4	6.9	499	9.2	--	.03	.46	48	24	12	--	16	205	8.5	.0	7.7	352	218	205	--
Oct. 17,	655	62	5	6.7	456	6.5	--	--	--	--	--	--	--	34	170	9.0	.0	5.6	--	206	178	--
Oct. 22, 1952	718	52	7	7.0	501	6.5	--	--	--	--	--	--	--	66	160	12	--	7.7	--	216	162	--
SCHUYLKILL RIVER AT PHOENIXVILLE																						
Oct. 5, 1949	477	66	5	7.4	487	6.5	--	.09	--	49	22	15	--	53	172	13	.0	8.6	309	213	169	--
Oct. 19,	370	58	10	7.2	513	10	--	--	--	--	--	--	--	90	161	17	.1	7.6	--	206	--	--
Oct. 26,	355	56	8	7.2	540	8.5	--	--	--	--	--	--	--	79	172	19	.1	8.8	--	215	--	---
SCHUYLKILL RIVER BELOW PHOENIXVILLE																						
Oct. 11, 1950	1,790	63	10	7.3	417	8.9	--	--	--	--	--	--	--	64	133	9.5	.0	7.1	--	174	122	--
Oct. 18,	872	57	4	7.3	339	8.7	--	.05	.2	34	13	11	--	45	110	9.0	.0	5.6	231	138	101	--
Oct. 25,	997	57	9	7.0	260	9.5	--	--	--	--	--	--	--	42	70	9.5	.0	5.3	--	104	70	--
Oct. 3, 1951	595	71	4	7.0	576	6.8	--	--	--	--	--	--	--	28	239	12	.0	6.3	--	245	222	--
Oct. 10,	875	59	5	6.8	552	9.6	--	.03	1.0	53	29	12	--	13	238	7.5	.0	7.4	365	247	237	--
Oct. 17,	698	63	5	7.0	466	6.7	--	--	--	--	--	--	--	30	170	10	.0	5.8	--	209	184	--
Oct. 22, 1952	765	50	7	7.2	490	7.8	--	--	--	--	--	--	--	65	156	12	--	7.7	--	216	163	--
SCHUYLKILL RIVER BELOW FRENCH CREEK AT PHOENIXVILLE																						
Oct. 5, 1949	508	65	5	7.2	476	8.5	--	.08	--	46	22	13	--	53	165	12	.1	7.0	300	205	162	--
Oct. 19,	394	58	10	7.2	450	12	--	--	--	--	--	--	--	74	131	15	.2	6.2	--	181	--	---
Oct. 26,	378	55	5	7.1	472	9.2	--	--	--	--	--	--	--	76	139	16	.1	6.4	--	187	--	--
SCHUYLKILL RIVER AT PORT KENNEDY																						
Oct. 5, 1949	549	65	10	7.2	474	4.5	--	.17	--	46	21	13	--	57	162	12	.1	6.4	297	201	154	--
Oct. 19,	434	59	8	7.4	475	11	--	--	--	--	--	--	--	78	137	16	.0	5.6	--	190	--	--
Oct. 26,	419	--	8	7.3	475	7.6	--	--	--	--	--	--	--	80	143	16	.0	6.6	--	189	--	--

MISCELLANEOUS ANALYSES OF STREAMS IN DELAWARE RIVER BASIN

Chemical analyses, in parts per million

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Noncarbonate	Total acidity as H_2SO_4
SCHUYLKILL RIVER AT PORT KENNEDY (Cont.)																						
Oct. 11, 1950------	1,950	--	10	7.5	428	6.8	--	--	--	--	--	--	--	78	123	13	0.0	5.8	--	171	107	--
Oct. 18,----------	932	57	5	7.4	328	8.4	--	0.04	0.02	32	13	11	--	50	100	8.5	.0	5.3	213	133	92	--
Oct. 25,----------	1,180	57	8	7.1	315	8.5	--	---	--	--	--	--	--	48	90	10	.0	6.3	--	130	91	--
Oct. 3, 1951------	629	67	6	6.7	552	5.1	--	--	--	--	--	--	--	40	216	14	.0	5.6	--	243	210	--
Oct. 10,----------	960	59	6	7.5	499	8.8	--	.03	.00	48	25	12	--	36	194	8.0	.0	8.0	328	223	193	--
Oct. 17,----------	761	60	6	7.3	445	6.5	--	---	--	--	--	--	--	36	159	10	.0	5.3	--	194	164	--
Oct. 22, 1952------	817	50	8	7.3	458	6.5	--	---	--	--	--	--	--	67	150	12	--	6.6	--	191	136	--
SCHUYLKILL RIVER AT CONSHOHOCKEN																						
Oct. 5, 1949-------	585	71	20	7.1	506	4.0	--	.14	--	50	21	15	--	77	158	16	.1	8.1	321	211	148	--
Oct. 19,----------	462	65	10	7.2	519	9.6	--	--	--	--	--	--	--	104	132	25	.0	5.8	--	202	--	--
Oct. 26,----------	447	61	10	7.2	520	7.6	--	--	--	--	--	--	--	107	134	26	.0	3.6	--	197	--	--
Oct. 11,----------	2,080	64	7	7.5	436	5.6	--	--	--	--	--	--	--	81	126	15	.0	5.9	--	178	112	--
Oct. 18,----------	993	64	6	7.4	354	8.5	--	.07	.2	34	14	14	--	58	102	12	.0	4.8	227	142	95	--
Oct. 25,----------	1,260	61	10	7.0	329	8.1	--	--	--	--	--	--	--	58	85	14	.0	4.9	--	132	84	--
Oct. 3, 1951-------	670	75	7	6.8	568	5.2	--	--	--	--	--	--	--	65	192	19	.0	5.0	--	235	182-	--
Oct. 10,----------	1,020	62	6	7.4	436	8.4	--	.01	.00	41	19	15	--	54	139	13	.0	7.7	291	180	136	--
Oct. 17,----------	811	66	7	7.1	493	7.4	--	--	--	--	--	--	--	46	166	16	.0	4.3	--	202	164	--
Oct. 22, 1952------	870	57	10	7.3	485	5.7	--	--	--	--	--	--	--	80	142	18	--	5.5	--	194	128	--
SCHUYLKILL RIVER AT GIRARD AVENUE IN PHILADELPHIA																						
Oct. 5, 1949-------	328	67	10	7.2	499	3.0	--	.11	--	50	22	18	--	85	139	20	.1	8.8	296	215	146	--
Oct. 19,----------	232	60	8	7.2	478	8.0	--	--	--	--	--	--	--	93	122	18	.2	8.6	--	193	--	--
Oct. 26,----------	550	60	10	7.2	481	8.5	--	--	--	--	--	--	--	100	124	18	.0	5.4	--	192	--	--
Oct. 11, 1950------	1,830	68	10	7.4	462	3.7	--	--	--	--	--	--	--	84	127	17	.0	5.5	--	185	116	--
Oct. 18,----------	635	63	10	7.4	362	8.7	--	.08	.2	35	13	16	--	66	97	15	.0	4.8	241	141	87	--
Oct. 25,----------	1,220	61	9	7.1	323	7.4	--	--	--	--	--	--	--	54	85	14	.0	6.2	--	130	86	--
Oct. 3, 1951-------	315	71	9	7.1	531	4.3	--	--	--	--	--	--	--	70	172	18	.0	4.7	--	225	168	--
Oct. 10,----------	730	63	7	7.8	472	5.4	--	.02	.00	44	22	15	--	57	155	14	.0	6.7	311	200	154	--
Oct. 17,----------	455	64	10	7.4	475	9.8	--	--	--	--	--	--	--	49	147	18	.0	4.4	--	198	158	--
Oct. 22, 1952------	505	52	15	7.3	481	5.6	--	--	--	--	--	--	--	81	145	19	--	5.7	--	196	130	--
SCHUYLKILL RIVER AT PASSAYUNK AVENUE IN PHILADELPHIA																						
Oct. 5, 1949-------	--	74	30	7.1	588	2.5	--	.37	--	48	20	35	--	116	144	37	.1	16	340	202	107	--
Oct. 19,----------	--	70	125	7.3	686	9.8	--	--	--	--	--	--	--	138	112	76	.1	.5	--	178	--	--
Oct. 26,----------	--	68	60	7.1	609	11	--	--	--	--	--	--	--	152	115	40	.1	.6	--	186	--	--
Oct. 25, 1950------	--	--	5	6.8	396	7.3	--	--	--	--	--	--	--	80	95	20	.0	.6	--	142	76	--
Oct. 3, 1951-------	--	79	40	6.6	679	6.7	--	--	--	--	--	--	--	88	197	41	.0	17	--	241	169	--
Oct. 10,----------	--	67	8	7.1	588	5.4	--	.04	.25	52	24	27	--	46	196	27	.0	9.1	400	228	191	--
Oct. 17,----------	--	67	50	7.2	608	9.8	--	--	--	--	--	--	--	69	205	28	.0	13	--	229	172	--

Chemical analyses, in parts per million

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Noncarbonate	Total acidity as H_2SO_4
WEST BRANCH SCHUYLKILL RIVER AT CRESSONA																						
Oct. 4, 1949	24	51	5	5.0	1,210	9.5	3.3	0.14	5.2	115	59	63	--	5	665	4.0	0.0	0.7	1,020	588	554	26
Oct. 18,	13	50	7	6.5	1,360	8.8	--	--	--	--	--	--	--	14	754	4.0	.0	5.8	--	684	--	--
Oct. 25,	13	57	3	6.2	1,250	9.6	--	--	--	--	--	--	--	16	677	5.0	.0	.7	--	584	--	--
Oct. 10, 1950	41	58	3	4.05	699	9.9	--	--	--	--	--	--	--	0	338	4.0	.0	.9	--	316	316	124
Oct. 17,	16	47	5	3.95	796	10	5.1	.21	4.5	70	42	14	--	0	397	6.0	.0	1.1	599	347	347	193
Oct. 24,	20	51	2	4.20	714	10	--	--	--	--	--	--	--	0	347	4.0	.0	.8	--	310	310	148
Oct. 2, 1951	20	57	2	3.75	2,020	14	--	--	--	--	--	--	--	0	1,200	4.0	.0	1.2	--	1,070	1,070	272
Oct. 9,	36	50	3	3.45	1,500	13	13	.42	8.7	136	99	18	--	0	852	3.5	.0	1.4	1,250	746	746	255
Oct. 16,	26	52	3	3.90	1,880	14	--	--	--	--	--	--	--	0	1,130	4.0	.0	1.0	--	1,020	1,020	242
Oct. 21, 1952	35	48	5	4.40	1,510	11	--	--	--	--	--	--	--	0	790	4.0	.0	1.3	--	760	760	204
LITTLE SCHUYLKILL RIVER AT TAMAQUA																						
Oct. 4, 1949	16	54	6	4.20	218	7.0	5.7	.16	.9	14	5.6	4.3	--	0	91	2.0	.0	1.2	142	93	93	56
Oct. 18,	12	50	5	4.30	253	9.2	--	--	--	--	--	--	--	0	110	2.0	.0	1.3	--	108	--	68
Oct. 25,	10	45	2	4.10	264	9.4	--	--	--	--	--	--	--	0	113	2.0	.0	1.3	--	72	--	68
LITTLE SCHUYLKILL RIVER ABOVE TAMAQUA																						
Oct. 10, 1950	145	57	7	5.9	83.3	5.6	--	--	--	--	--	--	--	6	25	3.0	.0	1.9	--	30	25	14
Oct. 17,	53	48	1	4.6	131	7.6	1.5	.20	.50	8.1	3.9	4.4	--	2	47	4.0	.0	3.2	87	36	35	38
Oct. 24,	42	50	2	4.6	149	7.6	--	.02	--	--	--	--	--	4	54	2.5	.0	2.1	--	40	37	53
Oct. 2, 1951	23	58	2	4.30	176	8.9	--	--	--	--	--	--	--	0	64	4.5	.0	2.5	--	44	44	44
Oct. 9,	47	48	6	4.10	138	8.2	.7	.50	.50	9.0	3.3	4.2	--	0	48	2.5	.0	2.4	85	36	36	38
Oct. 16,	23	50	5	4.45	164	9.0	--	--	--	--	--	--	--	0	56	1.0	.0	2.7	--	40	40	44
Oct. 21, 1952	17	49	3	4.20	213	8.4	--	--	--	--	--	--	--	0	83	4.0	--	2.3	--	48	48	70
LITTLE SCHUYLKILL RIVER BELOW TAMAQUA																						
Oct. 4, 1949	54	56	5	3.55	1,190	17	29	1.2	7.7	102	49	16	--	0	640	5.0	.0	.7	950	637	637	218
Oct. 18,	57	54	6	3.60	1,270	19	--	--	--	--	--	--	--	0	740	11	.0	.6	--	584	--	300
Oct. 25,	48	58	5	3.65	1,170	16	--	--	--	--	--	--	--	0	657	2.0	.0	.3	--	520	--	224
Oct. 10, 1950	195	59	10	4.8	672	12	--	--	--	--	--	--	--	1	320	6.0	.0	2.0	--	268	267	254
Oct. 17,	113	53	3	3.90	989	15	28	6.4	7.1	71	47	22	--	0	556	7.0	.0	2.0	840	370	370	384
Oct. 24,	88	52	3	3.70	1,000	15	--	1.1	--	--	--	--	--	0	526	5.0	.0	.9	--	370	370	382
Oct. 2, 1951	44	59	4	3.60	1,170	16	--	--	--	--	--	--	--	0	633	9.0	.0	1.6	--	456	456	398
Oct. 9,	79	52	5	3.20	1,020	16	17	1.7	6.3	72	51	14	--	0	535	5.0	.0	1.4	814	389	389	330
Oct. 16,	72	54	4	3.15	1,480	17	--	--	--	--	--	--	--	0	803	4.5	.0	1.3	--	573	573	508
Dec. 5,	1,630	--	3	4.7	179	--	--	--	--	--	--	8.3	--	1	67	1.5	--	.4	--	55	54	--
Oct. 21, 1952	53	48	3	3.50	1,110	15	--	--	--	--	--	--	--	0	565	15	--	1.3	--	540	540	408
LITTLE SCHUYLKILL RIVER AT PORT CLINTON																						
Oct. 4, 1949	83	59	6	3.65	893	14	25	.84	6.0	64	32	12	--	0	443	6.0	.0	4.0	676	445	445	168
Oct. 18,	64	48	5	3.85	1,040	16	--	--	--	--	--	--	--	0	575	9.0	.0	1.4	--	416	--	246
Oct. 25,	66	48	3	3.65	1,100	16	--	--	--	--	--	--	--	0	625	7.0	.0	1.4	--	508	--	224
Oct. 10, 1950	363	60	3	4.00	522	8.7	--	--	--	--	--	--	--	0	233	5.0	.0	2.6	--	188	188	116
Oct. 17,	161	52	10	3.80	591	11	13	.44	3.1	38	23	8.6	--	0	276	5.0	.0	4.5	407	189	189	190
Oct. 24,	154	52	2	4.00	626	11	--	.33	--	--	--	--	--	0	288	4.5	.0	4.1	--	220	220	215
Oct. 2, 1951	59	60	3	3.60	872	15	--	--	--	--	--	--	--	0	459	7.0	.0	2.7	--	330	330	264
Oct. 9,	129	53	5	3.45	613	12	11	.94	3.5	41	24	7.9	--	0	286	4.0	.0	3.9	432	201	201	172
Oct. 16,	120	56	2	3.25	1,100	17	--	--	--	--	--	--	--	0	559	5.5	.0	4.4	--	415	415	380
Oct. 21, 1952	90	49	7	3.70	911	15	--	--	--	--	--	--	--	0	458	13	--	2.5	--	397	397	332

MISCELLANEOUS ANALYSES OF STREAMS IN DELAWARE RIVER BASIN

Chemical analyses, in parts per million

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$		Total acidity as H_2SO_4
																				Total	Non-carbonate	
PANTHER CREEK AT TAMAQUA																						
Oct. 4, 1949	21	57	5	3.05	2,090	26	50	6.0	17	156	103	30	--	0	1,170	6.0	0.0	1.8	1,870	1,140	1,140	488
Oct. 18,	39	52	5	3.45	1,810	20	--	--	--	--	--	--	--	0	1,140	6.0	.0	.6	--	988	--	324
Oct. 25,	28	51	4	3.15	2,060	20	--	--	--	--	--	--	--	0	1,290	6.0	.0	.6	--	1,040	--	592
Oct. 10, 1950	50	--	8	3.50	1,570	22	--	--	--	--	--	--	--	0	941	8.0	.0	1.9	--	720	720	586
Oct. 17,	34	56	10	3.50	1,630	19	48	1.8	11	149	88	25	--	0	1,030	8.0	.0	1.4	1,520	734	734	698
Oct. 24,	40	54	4	3.35	1,950	24	--	4.3	--	--	--	--	--	0	1,220	6.5	.0	1.0	--	900	900	810
Oct. 2, 1951	35	58	5	3.10	1,940	28	--	--	--	--	--	--	--	0	1,210	6.0	.0	3.7	--	781	781	814
Oct. 9,	38	54	5	3.05	1,950	27	52	6.4	13	175	111	19	--	0	1,250	8.0	.0	2.0	1,880	893	893	800
Oct. 16,	43	58	5	3.10	2,060	23	--	--	--	--	--	--	--	0	1,260	5.0	.0	1.7	--	978	978	842
Oct. 21, 1952	35	50	2	3.30	1,680	20	--	--	--	--	--	--	--	0	920	20	--	1.5	--	870	870	632
MAIDEN CREEK NEAR TEMPLE																						
Oct. 4, 1949	73	62	5	7.5	231	4.0	--	.09	--	28	9.3	4.0	--	113	19	3.0	.0	2.0	132	108	16	--
Oct. 18,	55	53	5	7.6	246	4.9	--	--	--	--	--	--	--	122	18	3.0	.0	3.6	--	116	--	--
Oct. 25,	39	53	5	7.7	267	6.9	--	--	--	--	--	--	--	143	15	3.0	.0	4.8	--	125	--	--
TULPEHOCKEN CREEK AT WEST BRIDGEPORT																						
Oct. 4, 1949	87	62	10	7.6	338	4.0	--	.05	--	44	14	4.0	--	165	26	5.0	.0	7.6	198	167	32	--
Oct. 18,	66	56	7	8.0	348	4.8	--	--	--	--	--	--	--	176	23	5.5	.0	7.4	--	168	--	--
Oct. 25,	186	52	10	7.8	345	3.6	--	--	--	--	--	--	--	182	29	4.5	.0	7.6	--	166	--	--
WYOMISSING CREEK AT WEST READING																						
Oct. 4, 1949	3.8	69	100	7.0	799	7.0	--	.27	--	52	17	79	--	242	29	116	.0	.8	458	200	1	--
Oct. 18,	3.7	65	100	7.4	551	12	--	--	--	--	--	--	--	256	20	6.0	.1	.9	--	145	--	--
Oct. 25,	8.8	62	100	7.4	630	11	--	--	--	--	--	--	--	292	13	3.0	.0	1.0	--	156	--	--
Oct. 10, 1950	9	--	140	7.4	483	13	--	--	--	--	--	--	--	169	37	46	.0	1.0	--	136	0	--
Oct. 17,	7	68	120	7.4	1,060	11	--	.28	.4	56	18	131	--	214	57	193	.0	1.0	636	214	38	--
Oct. 24,	8	62	60	7.2	1,280	13	--	--	--	--	--	--	--	210	31	271	.0	.5	--	264	92	--
Oct. 2, 1951	5	73	40	7.0	549	12	--	--	--	--	--	--	--	217	50	30	.0	1.1	--	153	0	--
Oct. 9,	6	66	50	7.6	516	11	--	.21	.12	39	12	55	--	210	55	26	.0	.7	309	147	0	--
Oct. 16,	7	64	85	7.2	700	11	--	--	--	--	--	--	--	259	47	65	.0	1.1	--	200	0	--
Oct. 21, 1952	12	50	10	7.6	566	12	--	--	--	--	--	--	--	260	10	2.0	--	.1	--	180	-	--
ANGELICA CREEK AT READING																						
Oct. 4, 1949	2.5	70	150	6.9	1,670	16	--	1.2	--	100	20	65	--	932	14	62	.2	2.8	615	332	0	--
Oct. 18,	3.0	64	300	5.5	374	16	--	--	--	--	--	--	--	124	9.9	19	.1	6.3	--	145	--	--
Oct. 25,	6.8	69	--	3.70	2,610	60	--	--	--	--	--	--	--	0	230	290	.0	57	--	580	--	2,480
Oct. 10, 1950	4	64	15	7.0	196	14	--	--	--	--	--	--	--	90	17	7.0	.0	.2	--	81	7	--
Oct. 17,	3	60	60	6.8	227	14	--	.32	.3	24	9.7	8.9	--	94	19	11	.0	.6	156	100	23	--
Oct. 24,	5	59	25	6.8	213	13	--	--	--	--	--	--	--	91	16	8.5	.0	.3	--	88	13	--
Oct. 2, 1951	1	75	160	7.5	2,080	38	--	--	--	--	--	--	--	1,080	15	78	.0	2.6	--	311	0	--
Oct. 9,	3	64	5	7.2	216	14	--	.01	.0	22	8.3	7.4	--	84	20	8.5	.0	4.2	129	89	20	--
Oct. 16,	2	58	15	7.3	232	13	--	--	--	--	--	--	--	96	21	10	.0	.4	--	93	19	--
Oct. 21, 1952	3	50	5	7.4	230	10	--	--	--	--	--	--	--	86	26	13	--	4.6	--	92	22	--

Chemical analyses, in parts per million

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$		Total acidity as H_2SO_4
																				Total	Noncarbonate	
SCHUYLKILL RIVER BELOW READING																						
Oct. 10, 1950	1,840	65	5	6.7	517	9.0	--	--	--	--	--	--	--	25	218	6.0	0.0	3.5	--	231	210	--
Oct. 17,	770	59	30	6.7	393	8.1	--	.19	1.3	38	17	16	--	45	149	12	.0	4.2	286	165	128	--
Oct. 24,	955	59	35	6.8	427	8.1	--	--	--	--	--	--	--	51	144	11	.0	.2	--	176	134	--
Oct. 2, 1951	460	69	6	7.5	592	9.2	--	--	--	--	--	--	--	42	238	13	.0	5.5	--	258	224	--
Oct. 9,	805	64	4	5.6	609	10	4.8	.05	3.0	55	31	5.3		2	281	8.5	.0	2.7	440	265	263	--
Oct. 16,	470	60	5	7.2	520	8.7	--	--	--	--	--	--	--	26	197	12	.0	4.4	--	223	202	--
Oct. 21, 1952	501	49	15	6.8	552	8.7	--	--	--	--	--	--	--	66	180	16	--	5.6	--	237	183	--
ANTIETAM CREEK AT LORANE																						
Oct. 5, 1949	4.4	62	10	7.2	369	12	--	.05	--	32	16	18	--	158	32	14	.1	8.6	214	146	16	--
Oct. 19,	4.3	54	15	7.5	375	20	--	--	--	--	--	--	--	170	28	12	.0	7.4	--	146	--	--
Oct. 26,	4.2	53	15	7.1	255	9.6	--	--	--	--	--	--	--	100	27	10	.0	7.6	--	94	--	--
Oct. 11, 1950	4	55	10	7.7	294	17	--	--	--	--	--	--	--	119	22	18	.0	4.5	--	118	20	--
Oct. 18,	3	48	10	7.8	357	14	--	0.12	0.2	32	16	20	--	152	27	19	.0	6.0	212	146	21	--
Oct. 25,	8	54	5	7.1	317	17	--	--	--	--	--	--	--	124	26	17	.0	5.3	--	132	30	--
Oct. 3, 1951	5	59	7	7.7	365	11	--	--	--	--	--	--	--	160	27	18	.0	5.4	--	146	25	--
Oct. 10,	8	50	5	7.2	301	16	--	.02	.0	28	13	13	--	128	22	12	.0	8.5	177	123	18	--
Oct. 17,	7	52	8	7.5	280	14	--	--	--	--	--	--	--	129	21	8.0	.0	5.6	--	124	18	--
Oct. 22, 1952	8	48	10	7.5	319	12	--	--	--	--	--	--	--	151	37	8.5	--	9.0	--	155	31	--
MANATAWNY CREEK AT POTTSTOWN																						
Oct. 5, 1949	20	62	10	7.4	232	13	--	0.04	--	27	10	5.6	--	118	17	5.0	0.0	1.6	141	108	12	--
Oct. 7,		65	6	7.7	244	--	--	--	--	--	--	6.2		116	16	5.0	--	2.2	--	107	--	--
Oct. 19,	7.0	55	10	7.8	241	14	--	--	--	--	--	--	--	126	13	4.0	.0	1.1	--	110	--	--
Oct. 26,	15	52	10	7.5	230	8.8	--	--	--	--	--	--	--	122	21	3.0	.0	2.3	--	104	--	--
Nov. 10,		51	8	7.9	229	--	--	--	--	--	--	5.1		103	16	5.0	--	5.0	--	101	--	--
Dec. 14,		40	37	7.6	183	--	--	--	--	--	--	5.8		--	31	6.2	--	8.8	--	70	--	--
Jan. 17, 1950		39	6	7.7	212	--	--	--	--	--	--	6.9		84	24	6.0	--	5.9	--	92	23	--
Feb. 21,		--	1	8.0	219	--	--	--	--	--	--	6.7		84	25	5.0	--	9.4	--	95	26	--
Mar. 29,		50	14	7.7	177	--	--	--	--	--	--	6.3		62	23	5.5	--	6.4	--	74	23	--
May 3,		71	8	6.7	192	--	--	--	--	--	--	12		82	20	4.2	--	4.4	--	71	4	--
June 8,		77	9	7.2	201	--	--	--	--	--	--	4.9		86	17	5.0	--	5.1	--	90	20	--
July 14,		71	18	7.1	203	--	--	--	--	--	--	6.7		78	22	6.0	--	5.3	--	85	21	--
Aug. 18,		75	8	7.6	249	--	--	--	--	--	--	8.6		118	19	8.0	--	2.4	--	111	14	--
Oct. 11,	50	57	20	7.6	210	14	--	--	--	--	--	--	--	90	20	5.0	.0	2.8	--	90	16	--
Oct. 18,	45	--	7	7.8	255	10	--	.04	0.0	31	11	7.1	--	127	19	4.5	.0	4.1	148	123	19	--
Oct. 25,	74	55	15	7.5	215	14	--	--	--	--	--	--	--	88	23	8.0	.0	2.8	--	93	21	--
Oct. 3, 1951	18	63	7	7.6	246	11	--	--	--	--	--	--	--	120	18	4.5	.0	3.8	--	113	15	--
Oct. 10,	31	51	21	7.2	192	13	--	.02	.03	20	7.3	5.5	--	66	25	6.0	.0	4.2	121	80	26	--
Oct. 17,	29	54	7	7.2	228	12	--	--	--	--	--	--	--	103	21	5.0	.0	2.6	--	111	27	--
Oct. 22, 1952	44	43	7	7.3	245	10	--	--	--	--	--	--	--	117	20	5.0	--	4.3	--	90	0	--
FRENCH CREEK AT PHOENIXVILLE																						
Oct. 5, 1949	--	63	20	7.1	173	7.5	--	0.10	--	19	6.7	7.0	--	53	20	9.0	0.1	2.7	104	75	23	--
Oct. 19,	--	56	10	7.3	177	17	--	--	--	--	--	--	--	72	14	8.0	.0	1.3	--	62	--	--
Oct. 26,	--	54	10	7.2	152	13	--	--	--	--	--	--	--	61	17	7.0	.0	1.3	--	53	--	--
Oct. 11, 1950	--	59	25	7.4	148	17	--	--	--	--	--	--	--	52	17	6.0	.0	2.3	--	185	142	--

DELAWARE RIVER BASIN

PERKIOMEN CREEK AT GRATERSFORD, PA.

Chemical analyses, in parts per million

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$		Total acidity as H_2SO_4
																				Total	Noncarbonate	
Oct. 6, 1948	40	71	10	7.6	222	7.8	--	0.02	--	24	8.3	9.3		94	29	7.0	0.0	0.8	135	94	17	--
Oct. 20	43	64	12	7.9	248	11	--	.02	--	26	9.7	12		110	27	7.0	.0	.4	149	105	15	--
Nov. 3	67	51	18	7.9	251	14	--	.02	--	25	11	11		98	33	9.0	.1	1.8	155	108	27	--
Nov. 16	88	56	5	7.2	215	14	--	.01	--	22	8.1	10		77	29	7.0	.0	3.4	134	88	25	--
Dec. 6	58	36	6	7.9	237	13	--	.01	--	25	9.0	10		91	32	7.0	.0	2.8	146	99	25	--
Dec. 22	183	46	10	6.9	212	12	--	.04	--	21	8.2	10		52	44	7.5	.0	6.8	136	86	44	--
Dec. 27	4,790	56	60	6.6	145	10	--	.49	--	12	6.6	5.2		24	32	5.0	.0	8.8	110	57	37	--
Jan. 4, 1950	260	50	15	7.0	198	13	--	.06	--	19	8.2	7.9		48	39	7.0	.0	8.0	133	81	42	--
Jan. 24	163	39	10	7.6	207	12	--	.07	--	20	8.7	6.8		58	38	5.0	.0	7.9	136	86	38	--
Feb. 9	2,090	37	35	6.9	152	10	--	.10	--	13	5.7	7.6		32	33	4.5	.0	7.4	99	56	30	--
Feb. 14	3,730	39	25	7.0	143	9.2	--	.22	--	13	5.8	6.5		29	33	4.0	.0	7.2	98	56	33	--
Feb. 21	260	32	5	7.9	171	14	--	.02	--	16	7.0	6.4		40	35	5.0	.0	8.0	117	69	36	--
Mar. 9	1,190	42	30	7.7	147	9.5	--	.36	--	14	5.9	5.6		34	29	5.0	.0	7.2	103	59	31	--
Mar. 23	7,020	41	70	7.3	108	7.2	--	.88	--	10	4.5	4.2		18	25	2.0	.0	8.0	94	43	29	--
Apr. 4	446	62	5	7.9	159	13	--	.02	--	16	6.5	6.6		46	31	4.0	.0	5.6	108	67	29	--
Apr. 20	142	55	5	8.0	186	7.5	--	.02	--	19	7.5	9.0		62	31	5.5	.0	3.2	117	78	27	--
May 18	126	63	7	7.3	211	10	--	.02	--	22	8.6	7.2		80	32	5.0	.0	2.3	124	90	25	--
May 31	434	54	20	6.9	168	13	--	.02	--	17	6.8	5.3		51	32	3.5	.0	3.5	112	70	29	--
June 14	98	66	10	7.4	194	11	--	.03	--	21	7.9	8.0		75	29	5.0	.0	2.0	118	85	23	--
June 29	49	74	5	7.3	210	11	--	.04	--	22	7.7	11		90	27	5.0	.0	2.4	129	87	13	--
July 13	102	79	10	7.2	177	11	--	.05	--	18	7.0	7.9		68	25	6.0	.0	3.1	114	74	18	--
July 27	44	77	4	7.0	210	6.8	--	.21	--	24	8.2	11		122	5.6	6.0	.0	3.1	130	94	0	--
Aug. 3	58	75	10	7.4	203	8.2	--	.02	--	21	7.7	9.9		79	27	6.5	.0	2.7	121	84	19	--
Aug. 8	40	81	6	7.4	230	12	--	.01	--	24	8.2	11		100	28	2.5	.0	1.6	142	94	12	--
Sept. 13	96	65	15	7.0	191	13	--	.01	--	19	6.9	7.2		65	29	7.5	.0	2.6	121	76	22	--
Sept. 27	44	53	5	7.2	246	7.8	--	.02	--	24	9.5	11		86	34	7.0	.0	2.2	140	99	28	--

Chemical analyses, in parts per million

Date of collection	Mean discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$		Total acidity as H_2SO_4
																				Total	Noncarbonate	
PERKIOMEN CREEK AT OAKS																						
Oct. 5, 1949------	35	65	10	8.0	261	2.0	--	0.11	--	28	9.9	11	--	100	32	13	0.1	1.5	154	111	28	--
Oct. 19,----------	35	58	10	7.7	285	6.8	--	--	--	--	--	--	--	113	33	12	.0	.4	--	114	--	--
Oct. 26,----------	37	56	5	7.5	284	7.4	--	--	--	--	--	--	--	118	33	12	.1	.4	--	110	--	--
Oct. 11, 1950-----	142	62	9	7.8	251	6.0	--	--	--	--	--	--	--	104	31	9.5	.0	.5	--	100	15	--
Oct. 18,----------	50	57	10	8.2	245	8.4	--	.03	0.2	24	8.7	15	--	90	34	11	.0	.6	146	96	22	--
Oct. 25,----------	170	56	12	7.4	245	9.5	--	--	--	--	--	--	--	88	32	12	.1	1.6	--	96	24	--
Oct. 3, 1951------	27	67	8	7.9	273	6.5	--	--	--	--	--	--	--	104	34	12	.0	.5	--	108	23	--
Oct. 10,----------	75	57	10	7.7	242	9.4	--	.02	.00	25	8.5	10	--	89	29	10	.0	2.6	149	97	24	--
Oct. 17,----------	55	59	10	7.9	260	9.5	--	--	--	--	--	--	--	85	35	12	.0	2.4	--	107	37	--
Oct. 22, 1952-----	43	50	10	7.6	250	4.1	--	--	--	--	--	--	--	96	34	9.0	--	.5	--	102	23	--
WISSAHICKON CREEK AT PHILADELPHIA																						
Oct. 5, 1949------	21	61	15	7.8	373	5.0	--	0.12	--	34	22	11	--	163	36	16	0.0	7.2	204	175	42	--
Oct. 19,----------	18	57	8	7.7	411	11	--	--	--	--	--	--	--	185	39	17	.2	6.0	--	176	--	--
Oct. 26,----------	96	56	15	7.2	227	6.1	--	--	--	--	--	--	--	84	28	8.0	.0	4.7	--	85	--	--
Oct. 11, 1950-----	28	60	6	7.9	369	9.0	--	--	--	--	--	--	--	159	36	13	.0	8.3	--	158	28	--
Oct. 18,----------	21	56	6	7.8	382	10	--	.06	0.2	34	19	18	--	158	40	16	.0	7.2	230	163	34	--
Oct. 25,----------	38	--	25	7.2	248	8.8	--	--	--	--	--	--	--	74	36	12	.0	5.8	--	96	35	--
Oct. 3, 1951------	15	62	6	7.0	418	6.0	--	--	--	--	--	--	--	171	39	18	.0	6.6	--	182	42	--
Oct. 10,----------	17	57	7	7.9	394	8.1	--	.03	.00	33	22	14	--	165	37	17	.0	7.5	223	173	38	--
Oct. 17,----------	17	58	10	7.7	421	8.7	--	--	--	--	--	--	--	157	41	23	.0	7.1	--	182	53	--
Oct. 22, 1952-----	24	50	10	7.4	414	8.8	--	--	--	--	--	--	--	164	44	17	--	10	--	174	40	--

MISCELLANEOUS ANALYSES OF STREAMS IN DELAWARE RIVER BASIN

Chemical analyses, in parts per million

Date of collection	Discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Non-carbonate
W. BR. BRANDYWINE CREEK AT COATESVILLE																			
Oct. 3, 1949	12	--	7	7.8	157	6.8	.03	14	6.3	4.7		50	14	7.0	.1	6.8	99	61	20
Nov. 10,	14	--	7	7.8	154	6.6	.03	14	5.9	5.5		50	15	6.8	.0	6.1	99	59	18
Dec. 16,	30	--	17	6.0	122	11	.07	10	4.3	5.3		26	20	5.5	.0	5.3	82	43	21
Jan. 19, 1950	23	--	11	7.2	120	15	.06	11	4.5	3.9		32	15	5.0	.1	6.5	79	46	20
Feb. 25,	46	33	6	6.9	129	17	.06	11	4.6	4.8		34	15	5.5	.0	6.8	82	46	18
Mar. 25,	110	--	7	7.1	101	11	.10	8.7	3.5	4.8		19	19	4.1	.1	6.4	73	36	21
May 4,	63	58	5	7.0	100	11	.08	8.8	3.7	4.6		27	15	3.9	.1	4.4	71	37	15
June 8,	38	71	9	6.3	116	12	.04	11	4.3	5.8		40	13	5.0	.1	5.2	80	45	12
July 14,	48	67	13	7.8	109	10	.13	9.6	3.4	3.5		28	13	4.0	.1	4.0	77	38	15
Aug. 17,	16	73	2	7.5	137	10	.02	12	4.8	5.5		47	10	6.2	.1	4.5	88	50	11
Sept. 22,	46	61	9	7.6	106	--	--	--	---	5.6		34	12	4.6	--	4.1	---	38	10
BRANDYWINE CREEK AT CHADDS FORD, PENNSYLVANIA																			
Oct. 3, 1949	108	--	7	7.1	187	9.9	.04	17	6.0	9.3		59	22	8.1	.2	5.0	113	67	19
Nov. 10,	119	--	7	7.9	192	5.1	.03	17	6.2	8.5		55	25	7.1	.1	6.2	119	68	23
Dec. 17,	150	--	12	6.6	183	11	.33	16	5.9	8.1		44	27	8.5	.0	7.0	112	64	28
Jan. 18, 1950	---	--	7	6.9	171	12	.05	16	5.8	7.8		47	24	6.9	.1	8.9	107	64	25
Feb. 24,	304	--	11	6.8	160	14	.12	14	5.1	7.2		40	21	7.8	.1	7.0	99	56	23
Mar. 27,	564	--	6	7.4	141	12	.12	13	4.7	6.7		35	23	5.1	.0	8.0	94	52	23
May 4,	421	56	5	6.7	133	12	.10	12	4.4	7.0		38	18	5.6	.2	6.1	93	48	17
June 8,	309	70	5	6.2	147	10	.12	13	4.9	7.6		45	18	5.8	.1	6.4	96	53	16
July 13,	260	76	5	7.6	132	11	.03	12	3.9	5.4		36	17	4.5	.2	4.4	91	46	16
Aug. 17,	149	72	3	7.6	176	8.8	.04	16	5.7	8.3		57	19	7.8	.2	4.0	109	63	17
Sept. 22,	370	61	7	7.8	179	--	--	--	---	9.6		52	23	7.8	--	6.7	---	62	19
BRANDYWINE CREEK AT WILMINGTON, DEL.																			
Oct. 1, 1949	153a/	65	6	7.0	183	7.5	.04	17	5.6	8.9		58	22	7.1	.2	4.6	115	65	18
Nov. 8,	140a/	48	7	7.4	170	6.0	.04	16	5.6	6.2		50	21	6.5	.1	5.3	106	63	22
Nov. 30,	180a/	39	6	7.3	179	6.0	.06	16	5.6	8.4		50	24	6.9	.1	6.5	111	63	22
Dec. 31,	225	36	20	6.5	158	12	.08	14	5.2	6.5		41	22	6.5	.1	5.7	103	56	23
Jan. 31, 1950	407	44	8	7.3	160	10	.05	15	5.5	6.7		45	22	6.4	.1	7.0	101	60	23
Feb. 28,	210	34	10	7.1	163	14	.13	15	5.3	5.9		42	21	7.0	.0	7.5	101	59	25
Apr. 1,	550	--	13	7.7	140	12	.04	13	4.9	7.4		42	20	6.1	.1	5.7	91	53	18
Apr. 28,	614	56	5	6.6	136	7.2	.10	12	4.3	7.8		37	19	6.8	.1	5.8	89	48	17
May 31,	510	64	5	6.8	131	12	.08	11	4.5	6.7		38	17	4.8	.1	5.7	89	46	15
June 30,	265a/	--	1	7.0	151	12	.04	14	5.0	7.5		48	19	6.0	.1	4.9	100	56	16
Aug. 1,	149a/	--	10	6.8	163	--	--	--	---	8.3		54	19	6.8	--	3.4	---	58	14
Sept. 1,	295a/	--	8	7.4	158	--	--	--	---	8.4		46	21	7.1	--	3.3	---	54	16
Oct. 2,	220	65	4	7.5	171	--	--	--	---	10		54	20	7.1	--	5.7	---	58	14
Feb. 2, 1951	1630	--	--	6.7	94.4	--	--	--	---	5.1		24	15	4.0	--	2.6	---	32	12

a/ Mean Daily Discharge

Chemical analyese, in parts per million

Date of collection	Discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$		Total acidity as H_2SO_4
																				Total	Noncarbonate	
DILLDOWN CREEK NR. LONG POND																						
Mar. 28, 1950		--	31	4.8	25.5	2.3	--	.00	--	1.3	.5	1.8	--	2	5.8	.8	.0	.8	23	5	4	--
June 10,		55	14	4.7	11.7	3.3	--	.04	--	.3	.4	1.5		3	1.4	1.0	.1	.1	16	2	0	--
EAST BRANCH LACKAWANNA RIVER AT UNIONDALE																						
Nov. 10, 1950	26.5	47	22	7.3	66.3	1.8	--	.02	--	8.8	1.3	1.4	.8	20	9.9	2.2	.1	.7	44	27	11	--
WEST BRANCH LACKAWANNA RIVER AT UNIONDALE																						
Nov. 10, 1950	23.0	45	22	7.2	61.7	1.8	--	.02	--	8.6	1.0	1.4	1.0	23	7.2	1.8	.0	.6	44	26	7	--
ELK CREEK AT SIMPSON																						
Nov. 10, 1950	10.3	51	6	5.4	525	5.7	--	.12	--	53	35	4.1	3.6	6	255	1.8	.3	.2	373	276	271	--
RACKET BROOK AT CARBONDALE																						
Nov. 10, 1950	1.8	47	3	7.2	73.3	--	--	--	--	--	--	3.6		3	21	2.5	--	1.1	--	21	19	--
RALL BROOK NR. CARBONDALE																						
Nov. 10, 1950	11	48	9	7.1	99.7	3.4	--	.19	--	9.6	4.1	1.0	1.4	13	27	2.2	.1	.8	62	41	30	--
LACKAWANNA RIVER AT ARCHBALD																						
Nov. 10, 1950	163	49	3	4.40	317	4.9	2.8	.19	2.0	24	15	3.1	1.1	0	128	2.9	.3	.1	205	142	142	206
ROARING BROOK AT SCRANTON																						
Nov. 10, 1950	2.0	48	4	3.15	831	16	19	5.1	3.5	39	19	1.9	2.8	0	327	3.5	.3	.8	477	341	341	20
LEGGETT CREEK AT SCRANTON																						
Nov. 9, 1950	3.4	57	6	7.2	162	3.2	--	.05	--	17	3.5	8.5	1.8	40	25	8.9	.1	2.9	96	57	24	
STAFFORD MEADOW BROOK AT SCRANTON																						
Nov. 9, 1950	4.7	55	4	7.3	65.1	2.8	--	.08	--	7.1	2.1	1.5	1.0	10	16	2.4	.2	.0	43	26	18	--
LACKAWANNA RIVER AT OLD FORGE																						
Nov. 9, 1950	323	56	4	3.50	852	5.4	--	.86	4.0	64	43	11	3.6	0	385	6.2	.3	.3	566	415	415	90

MISCELLANEOUS ANALYSES OF STREAMS IN SUSQUEHANNA RIVER BASIN--Continued

Chemical analyses, in parts per million

Date of collection	Discharge (second feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfates (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$: Total	Hardness as $CaCO_3$: Non carbonates	Total acidity as H_2SO_4
								ST. JOHNS CREEK AT OLD FORGE														
Nov. 9, 1950-----	6.4	59	7	3.60	1220	13	--	1.3	--	102	77	1.5	5.2	0	651	7.8	.3	.3	963	668	668	--
								FALLS CREEK AT FALLS														
Nov. 9, 1950-----	4.6	52	11	7.3	167	3.7	--	.02	--	23	2.8	5.4	1.5	61	21	3.4	.1	1.8	102	69	19	--
								GARDNER CREEK NR. RANSOM														
Nov. 9, 1950	3.7	55	4	7.8	146	2.1	--	.02	--	20	2.8	3.7	1.2	49	22	4.0	.1	1.4	87	61	21	--
								MILL CREEK AT WILKES-BARRE														
Nov. 9, 1950-----	3.4	52	4	7.7	37.1	2.3	--	.04	--	3.7	1.4	1.7	1.6	7	11	1.6	.1	.6	27	15	9	--
								SOLOMANS CREEK AT WILKES-BARRE														
Nov. 9, 1950-----	21	56	7	3.20	1340	16	16	4.2	3.0	88	57	37	5.6	0	637	6.5	.4	.7	925	595	595	196
								TUNKHANNOCK CREEK AT GLENWOOD														
Nov. 10, 1950----	56.0	50	7	7.4	90.7	2.5	--	.01	--	12	1.8	1.6	1.1	34	11	2.6	.1	.7	55	37	10	--
								EAST BRANCH TUNKHANNOCK CREEK AT GLENWOOD														
Nov. 10, 1950----	34.3	48	8	7.6	97.7	2.7	--	.02	--	14	1.8	1.9	.9	36	12	2.5	.1	.8	61	42	13	--
								MARTIN CREEK AT NICHOLSON														
Nov. 10, 1950----	53.5	48	9	7.2	112	2.8	--	.04	--	13	2.6	3.9	1.2	38	15	4.6	.1	.7	68	43	12	--
								SOUTH BRANCH TUNKHANNOCK CREEK NR. BARDWELL														
Nov. 10, 1950----	47.9	48	13	7.5	130	2.2	--	.02	--	18	2.3	3.4	1.1	43	18	4.2	.1	1.2	79	54	19	--

Chemical analyses, in parts per million

Date of collection	Discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$		Total acidity as H_2SO_4
																				Total	Noncarbonate	
								TUNKHANNOCK CREEK AT DIXON														
Nov. 10, 1950	236	50	9	7.6	109	2.4	--	.02	--	14	2.1	2.6	1.5	37	15	3.6	.0	1.1	67	44	13	--
								PINE CREEK NR. JERSEY SHORE														
Oct. 13, 1950	3,290a/	54	7	7.4	63.9	4.6	--	.04	--	7.1	1.7	1.1	1.0	14	13	1.5	.2	.7	42	25	13	--
Nov. 15,	1,200a/	--	4	7.4	57.3	3.3	--	.07	--	6.3	1.7	1.0	.7	12	13	1.4	.3	.5	37	23	13	--
Dec. 13,	2,840a/	--	2	6.8	56.6	4.0	--	.02	--	6.2	1.5	.9	.9	5	17	1.2	.2	.4	38	22	18	--
Mar. 27, 1951	2,160a/	40	6	6.8	62.0	4.9	--	.03	--	6.3	1.6	3.3	.9	14	14	2.9	.1	1.2	42	22	11	--
May 4,	1,160a/	--	3	7.3	58.9	3.8	--	.05	--	6.4	1.6	1.4	1.4	15	12	1.4	.1	.5	44	23	10	--
June 5,	328	74	4	7.3	73.7	2.2	--	.05	--	7.9	2.0	2.6	1.5	22	13	2.2	.1	.4	49	28	10	--
July 11,	745	75	5	7.0	69.7	3.6	--	.08	--	7.8	1.6	2.8	1.0	20	14	1.8	.1	.3	46	26	10	--
Aug. 15,	308	72	5	7.1	88.0	1.9	--	.05	--	10	2.8	3.7		30	13	3.8	.1	.9	52	36	12	--

a/ Estimated

MISCELLANEOUS ANALYSES OF STREAMS IN SUSQUEHANNA RIVER BASIN IN PENNSYLVANIA

Chemical analyses, in parts per gallon

Date of collection	Mean discharge (second feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Noncarbonates	Total acidity as H_2SO_4
WAPWALLOPEN CREEK NEAR WAPWALLOPEN																						
Oct. 28, 1949	9.8	82	5	6.6	60.2	6.5	—	0.01	0.0	5.0	2.1	4.4		16	12	3.0	0.0	1.0	40	21	8	—
Dec. 1	16	34	1	7.9	60.6	6.5	—	.02	.0	5.4	2.0	4.9		14	13	4.5	.0	1.1	44	22	10	—
Dec. 22	38	46	4	6.2	58.4	6.3	—	.01	.0	5.4	2.1	1.3		9	13	2.5	.0	.7	42	22	16	—
Jan. 27, 1950	63	43	5	8.2	54.5	5.4	—	.10	.0	5.0	1.8	1.2		10	9.5	3.0	.0	.2	32	20	12	—
Feb. 24	88	41	10	6.0	50.4	6.2	—	.01	.0	4.4	1.7	1.7	1.0	7	12	1.9	.0	1.5	33	18	12	—
Mar. 17	66	33	5	6.6	50.8	5.0	—	.08	.0	4.1	1.6	3.3		11	12	1.0	.0	1.4	35	17	8	—
Apr. 21	158	42	10	6.3	50.1	4.0	—	.02	.0	4.2	1.7	3.6		12	13	1.0	.0	.7	42	18	8	—
May 22	50	52	5	7.1	52.5	4.5	—	.02	.0	4.4	1.4	4.2		14	11	2.0	.0	.3	36	17	5	—
June 23	49	60	4	6.6	47.4	4.9	—	.02	.0	5.0	1.4	4.0		16	10	2.0	.0	.8	36	18	5	—
July 21	26	65	4	6.6	69.2	5.6	—	.14	.0	4.2	2.5	4.6		20	8.5	3.5	.0	.7	—	21	4	—
Aug. 18	8.7	67	3	6.9	48.8	4.9	—	.01	.0	4.4	1.4	3.8		18	8.8	1.0	.0	1.0	33	17	2	—
Sept. 21	9.4	53	4	7.2	56.9	4.5	—	.16	.1	5.4	1.6	4.7		20	10	2.0	.0	.8	34	20	4	—
NESCOPECK CREEK AT NESCOPECK																						
Oct. 28, 1949	78	—	2	3.40	947	16	22	0.47	6.7	38	42	12		0	424	6.0	0.0	0.3	671	268	268	280
Dec. 1	140	35	2	3.75	794	15	21	.45	4.5	29	28	17		0	334	8.0	.0	.2	518	188	188	242
Dec. 22	160	47	3	3.85	777	14	22	.24	3.6	26	26	13		0	308	9.0	.0	3.6	539	172	132	238
Jan. 27, 1950	55	46	3	3.90	704	12	16	.49	3.3	24	26	8.6		0	265	8.5	.0	.2	448	167	167	168
Feb. 25	56	42	5	3.30	583	11	14	.40	4.0	25	20	3.7	1.2	0	223	3.5	.0	2.3	316	145	145	115
Mar. 17	61	36	4	3.50	580	12	15	.43	2.7	20	21	—		0	229	3.5	.0	.7	380	136	136	134
Apr. 21	700	46	2	3.80	314	7.9	6.9	.15	1.5	12	11	2.8		0	123	2.0	.0	.2	193	75	75	73
May 22	345	54	2	3.70	506	10	14	.32	2.6	18	12	11		0	199	3.5	.0	.4	316	94	94	132
June 23	260	62	1	3.90	650	12	18	.29	3.5	24	23	5.3		0	262	4.5	.0	.3	382	154	154	202
July 21	450	69	3	3.85	607	16	21	.90	5.2	30	36	19		0	378	4.0	.0	.1	607	—	—	236
Aug. 18		70	1	4.05	1,260	21	33	3.7	8.7	52	55	43		0	625	7.5	.0	2.5	958	356	356	424
Sept. 21		63	2	4.00	1,270	20	44	3.6	9.1	56	56	20		0	654	5.0	.0	2.4	947	370	370	374
CATAWISSA CREEK AT CATAWISSA																						
Oct. 28, 1949	780	—	3	3.75	572	15	18	0.09	3.0	23	18	14		0	260	4.5	0.0	0.3	362	131	131	160
Dec. 1	220	39	2	4.15	461	14	14	.11	2.3	19	14	10		0	197	5.0	.0	.3	318	105	105	138
Dec. 22	175	43	3	4.35	345	10	12	.05	1.2	15	9.6	1.1		0	135	5.0	.0	2.3	236	77	77	92
Jan. 27, 1950	26	45	2	4.40	263	9.0	5.8	.07	.7	11	7.0	3.6		0	90	3.5	.0	.1	167	56	56	64
Feb. 24	35	38	1	4.00	178	8.0	4.7	.06	.55	8.8	5.2	1.7	1.4	0	63	1.8	.0	2.5	96	43	43	35
Mar. 17	21	35	3	4.05	240	8.2	6.2	.12	.8	9.8	7.0	—		0	87	2.5	.0	.4	148	53	53	56
Apr. 21	2,500	46	3	4.40	146	6.9	3.1	.07	.5	7.2	4.4	1.2		0	53	2.0	.0	.2	89	36	36	32
May 22	350	56	1	4.5	180	7.0	5.2	.07	.5	8.8	4.5	1.5		3	66	1.5	.0	.7	111	40	38	42
June 23	110	66	3	4.5	229	8.4	6.4	.03	.6	10	7.0	2.5		2	85	4.0	.0	.2	133	54	52	76
July 21	74	70	2	4.35	373	11	11	.28	1.8	16	14	16		0	148	—	.0	.2	263	97	97	96
Aug. 18		72	2	4.35	718	18	26	.69	3.6	32	23	16		0	342	3.5	.0	1.8	536	174	174	238
Sept. 21		64	2	4.40	588	15	24	.56	3.3	26	14	13		0	276	3.0	.0	1.8	408	122	122	182

Chemical analyses, in parts per gallon

Date of collection	Mean discharge (second feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$		Total acidity as H_2SO_4
																				Total	Non carbonate	
SHAMOKIN CREEK AT WEIGH SCALE																						
Oct. 27, 1949	27	--	4	3.55	1,670	21	20	0.50	9.4	143	88	47		0	914	8.5	0.0	0.6	1,360	719	719	290
Dec. 1	35	40	5	4.35	1,810	20	7.7	.29	7.3	122	69	157		0	707	177	.0	.8	1,380	588	588	222
Dec. 22	60	55	90	4.6	1,610	19	42	12	6.0	103	71	39		4	726	105	.0	2.8	1,380	549	546	320
Jan. 27, 1950	84	48	4	3.65	1,910	18	22	5.8	8.8	124	85	42		0	846	24	.0	.7	1,440	659	659	352
Feb. 24	130	40	20	2.85	1,760	19	24	19	9.6	102	76	44	6.0	0	815	44	.1	.1	1,160	567	567	276
Mar. 17	102	46	5	3.25	1,700	21	21	5.0	8.4	136	90	15		0	866	9.0	.0	4.8	1,360	709	708	302
Apr. 21	147	53	4	3.70	1,680	20	20	3.8	9.6	114	55	78		0	785	7.5	.0	.8	1,200	511	511	391
May 22	117	57	5	3.70	1,560	20	29	16	10	116	65	32		0	811	10	.0	1.3	1,270	557	557	360
June 23	94	67	40	3.60	2,110	19	26	7.6	8.6	113	80	109		0	825	128	.0	2.0	1,350	611	611	562
July 21	94	66	5	4.25	1,500	20	16	56	7.7	117	90	13		0	874	21	.0	7.7	1,480	662	662	388
Aug. 18	86	65	25	4.20	1,610	19	14	28	8.7	133	81	33		0	852	14	.0	3.7	1,320	665	665	292
Sept. 21	50	67	140	4.9	1,860	20	15	53	8.7	126	70	106		0	802	105	.0	1.4	1,510	602	596	300
MAHANOY CREEK AT DORRSIFE																						
Oct. 27, 1949		--	4	3.60	1,760	21	25	0.35	11	147	113	59		0	1,060	20	0.0	1.0	1,580	831	831	427
Dec. 1	92	42	4	3.80	1,990	25	48	.52	13	177	140	12		0	1,260	22	.0	.5	1,940	1,020	1,020	628
Dec. 22	110	45	8	3.95	1,570	20	33	1.3	7.6	135	100	5.2		0	920	5.0	.0	1.0	1,450	748	748	516
Jan. 27, 1950	16	45	3	4.00	1,460	19	24	.68	8.1	108	89	5.8		0	755	12	.0	.5	1,300	635	635	272
Feb. 24	34	39	2	3.25	1,180	14	15	.55	8.8	81	62	8.8	3.7	0	602	3.8	.0	.5	901	457	457	140
Mar. 17	25	30	4	3.55	1,350	17	25	.50	7.6	102	83	2.3		0	730	6.0	.0	1.3	1,140	596	596	310
Apr. 21	400	51	4	4.15	1,160	15	22	.37	6.8	86	47	55		0	534	4.0	.0	.4	972	408	408	316
May 22	130	61	7	4.00	1,300	15	27	1.0	5.5	96	64	58		0	717	6.0	.0	.2	1,120	462	462	372
June 23	140	70	6	3.90	1,820	18	33	.73	9.7	121	99	30		0	925	14	.0	.5	1,360	709	709	510
July 21	6	78	3	3.90	1,840	21	11	1.6	11	136	132	26		0	1,070	31	.0	.3	1,760	882	882	504
Aug. 18		71	5	4.10	2,070	26	42	1.6	12	161	134	51		0	1,260	10	.0	1.0	1,950	953	953	642
Sept. 21		66	5	4.05	2,040	23	49	2.2	15	162	109	72		0	1,260	3.0	.0	2.4	1,890	852	852	576
MAHANTANGO CREEK NEAR DALMATIA																						
Oct. 27, 1949	52	45	4	5.0	223	6.4	--	0.01	1.3	17	9.6	8.9		6	56	3.0	0.0	1.1	141	82	75	13
Dec. 1	52	41	2	5.1	168	7.4	--	.04	.6	14	6.5	5.9		10	57	4.0	.0	1.7	115	62	53	--
Dec. 22	107	43	4	6.0	123	7.1	--	.03	.0	11	4.5	2.3		8	33	4.0	.0	5.6	89	46	35	--
Jan. 27, 1950	130	47	3	4.9	157	7.3	1.4	.07	.5	10	5.3	2.0		8	45	3.0	.0	2.8	102	47	40	12
Feb. 24	265	39	2	4.05	147	7.4	.8	.04	.35	8.6	4.7	1.7	.6	0	42	1.8	.0	4.3	72	41	41	14
Mar. 17	141	36	3	4.40	156	6.9	.8	.06	.4	9.4	5.4	1.1		0	47	2.5	.0	2.5	89	46	46	20
Apr. 21	224	50	5	5.3	136	6.4	--	.07	.6	9.2	5.7	4.1		6	44	2.0	.0	2.2	82	46	42	-
May 22	150	61	3	5.1	121	6.0	--	.03	.3	8.6	4.4	3.5		14	30	2.0	.0	1.9	79	40	28	--
June 23	92	72	3	4.9	179	7.0	1.4	.06	.8	12	7.5	6.9		6	62	4.0	.0	.9	108	61	56	20
July 21	80	78	2	5.9	136	7.3	--	.03	.0	9.4	5.8	6.5		14	41	3.0	.0	3.8	102	47	36	--
Aug. 18	32	73	1	5.2	237	6.8	--	.05	1.3	17	9.0	11		10	88	4.0	.0	.7	141	79	71	--
Sept. 21	72	64	2	5.6	188	7.9	--	.05	1.1	14	7.2	7.0		10	63	3.5	.0	5.8	113	65	56	--

MISCELLANEOUS ANALYSES OF STREAMS IN SUSQUEHANNA RIVER BASIN

Chemical analyses, in parts per million

Date of collection	Mean discharge (second feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$		Total acidity as H_2SO_4
																				Total	Non carbonate	
WICONISCO CREEK AT ELIZABETHVILLE, PA.																						
Oct. 27, 1949	26	--	3	7.5	352	8.2	--	0.01	0.0	30	15	18		38	127	6.5	0.0	4.4	235	137	105	--
Dec. 1	24	51	4	7.4	339	10	--	.02	.0	29	14	18		30	121	9.0	.0	7.6	242	130	105	--
Dec. 22	500	44	5	7.0	235	7.9	--	.03	.0	20	11	5.4		16	83	3.0	.0	3.9	166	95	82	--
Jan. 27, 1950	13	46	4	6.9	197	6.8	--	.11	.0	18	9.2	2.7		18	65	3.0	.0	2.4	145	83	68	--
Feb. 24	505	41	5	6.2	163	6.6	--	.06	.5	14	7.4	3.3	2.6	10	58	2.0	.1	2.2	100	65	57	--
Mar. 17	10	39	4	7.0	213	6.2	--	.07	.6	17	9.9	6.9		20	72	3.5	.0	2.3	137	83	67	--
Apr. 21	120	49	4	7.1	228	4.9	--	.05	.7	20	12	8.9		28	87	2.5	.0	2.0	155	99	76	--
May 22	120	59	6	7.1	161	5.8	--	.18	.2	14	6.7	9.5		30	53	2.0	.0	.7	109	62	38	--
June 23	90	70	3	6.7	275	6.5	--	.03	.0	24	14	11		38	100	3.5	.0	2.5	183	117	86	--
July 21	20	77	4	6.9	319	7.3	--	.10	.0	28	16	10		42	111	4.0	.0	2.6	223	136	101	--
Aug. 18	--	72	3	7.5	394	6.2	--	.02	.0	37	20	14		54	148	3.0	.0	3.2	273	175	130	--
Sept. 21	--	65	3	7.4	319	6.5	--	.08	.1	28	15	12		37	114	4.5	.0	2.6	207	132	101	--
SWATARA CREEK AT HARPERS TAVERN, PA.																						
Oct. 27, 1949	185	48	2	7.2	271	7.0	--	.02	.0	27	11	8.6		36	92	3.0	.0	2.3	177	113	83	--
Dec. 2	78	34	1	7.5	208	7.0	--	.02	.0	23	7.7	7.1		36	64	4.0	.0	3.4	145	89	60	--
Dec. 22	147	41	4	6.8	158	7.8	--	.02	.0	15	6.2	4.0		20	44	3.0	.0	6.4	112	63	47	--
Jan. 27, 1950	39	46	5	6.7	141	7.3	--	.11	.0	14	4.8	4.4		18	39	3.5	.0	4.9	90	55	40	--
Feb. 24	645	38	3	6.2	123	7.6	--	.04	.1	11	4.6	1.7	.9	11	35	2.1	.0	4.8	75	46	37	--
Mar. 17	444	40	4	7.2	121	7.1	--	.10	.2	11	4.9	3.4		17	33	2.0	.0	4.9	81	48	34	--
Apr. 19	294	61	5	7.3	128	6.2	--	.04	.2	12	5.4	5.2		24	37	2.0	.0	3.2	93	52	32	--
May 24	1,580	61	30	7.2	89.5	5.8	--	.39	.0	9.8	3.0	4.1		22	22	2.5	.0	1.6	68	37	19	--
June 21	359	67	2	6.9	130	7.1	--	.03	.0	13	4.8	6.5		32	32	3.0	.0	3.3	87	52	26	--
July 19	255	79	2	6.8	130	6.8	--	.09	.0	12	5.4	6.3		30	33	3.5	.0	2.5	92	52	28	--
Aug. 16	68	77	2	7.5	214	6.3	--	.01	.0	22	8.3	6.5		30	71	2.0	.0	2.4	139	89	64	--
Sept. 20	122	66	5	7.3	174	7.4	--	.08	.1	19	6.5	5.6		37	46	3.0	.0	4.7	113	74	44	--

Analyses of water samples collected during period of low flow, August 1950

Date of collection	Discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$		Total acidity as H_2SO_4
																				Total	Noncarbonate	
Big Piney Run, Nr. Salisbury Aug. 9	5.2	71	13	6.8	72.5	3.9	--	.16	--	8.2	2.5	1.5	1.6	24	11	2.0	.1	1.4	49	31	11	--
Tub Mill Run at West Salisbury Aug. 11	12.3	66	8	6.9	93.6	3.9	--	.21	--	11	2.6	2.4		17	24	1.8	.1	2.1	63	38	24	--
Casselman River Nr. Salisbury Aug. 9	19.4	68	4	6.5	137	3.3	--	.06	--	16	3.7	1.6	1.4	14	44	2.2	.1	1.8	86	55	44	--
Flaugherty Creek at Meyersdale Aug. 11	6.8	67	10	6.7	147	4.2	--	.10	--	16	4.1	2.5		15	42	2.5	.2	2.5	94	57	44	--
Blue Lick Creek Nr. Meyersdale Aug. 11	17.3	68	4	3.50	665	--	--	--	--	--	--	--	--	0	264	3	--	.3	--	33	33	51
Buffalo Creek at Garrett Aug. 9	5.6	76	2	3.75	582	8.1	1.4	.12	1.0	61	21	6.2	5.0	0	242	6.0	.2	3.9	368	258	258	60
Coxes Creek at Rockwood Aug. 10	48	65	2	6.2	376	2.1	--	.03	--	35	8.7	19	3.6	10	112	28	.1	5.2	233	123	115	--
E. Br. Coxes Creek Nr. Edgewood Aug. 11	11.1	68	5	6.7	256	6.1	--	.01	--	28	6.1	9.4		34	68	7.4	.3	6.8	163	95	67	--
W. Br. Coxes Creek Nr. Edgewood Aug. 11	2.3	70	8	7.8	130	2.6	--	.12	--	14	3.4	6.6		51	13	4.1	.1	2.4	79	49	77	--
Middle Creek Nr. Casselman Aug. 11	6.8	69	4	7.7	102	3.3	--	.08	--	12	3.2	2.7		41	10	2.2	.1	1.9	62	43	10	--
Isers Run at Markleton Aug. 11	11.8	62	7	4.50	49.7	--	--	--	--	--	--	--	--	1	10	2	--	1.0	--	10	9	--
McClintock Run at Fort Hill School Aug. 11	12.2	62	5	6.8	80.4	4.4	--	.09	--	6.5	1.0	1.8		14	9.6	1.0	.1	1.4	35	20	9	--
Whites Creek Nr. Harnedsville Aug. 11	28.9	65	3	7.0	89.2	4.8	--	.10	--	10	2.2	2.3		9	27	1.2	.1	1.9	60	34	27	--
Laurel Hill Creek Nr. Bakeroville Aug. 11	10.3	68	4	7.3	68.1	3.9	--	.08	--	8.4	1.7	3.0		26	8.1	1.8	.2	2.1	42	28	7	--

Youghiogheny River Basin Study

Analyses of water samples collected during period of low flow, August 1950

40240

Date of collection	Discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$		Total acidity as H_2SO_4
																				Total	Noncarbonate	
Laurel Hill Creek at Ursina Aug. 10	86	69	8	6.5	46.6	2.8	--	.15	--	5.3	1.4	1.0		12	8.7	1.5	.1	1.2	32	19	9	--
Casselman River at Harnedsville Aug.11	95	72	2	4.2	310	4.8	1.2	.08	4.0	26	9.0	1.2		0	112	2.6	.1	1.5	182	119	119	56
Youghiogheny River at Confluence Aug. 10	1100	61	4	5.7	51.2	3.2	--	.05	--	5.0	1.5	2.0	1.0	5	16	1.2	.1	1.6	35	19	15	--
Big Meadow Run at Ohiopyle Aug. 10	15.0	65	7	7.0	54.0	3.5	--	.11	--	7.0	1.4	1.0	.9	19	7.4	1.4	.1	.9	36	23	8	--
Indian Creek Nr. Mill Run Aug. 9	14.6	73	3	6.3	102	4.2	--	.03	--	12	2.2	1.1	1.4	12	30	1.6	.1	2.5	64	41	31	--
Indian Creek at Champion Aug. 11	7.4	63	4	7.7	84.3	3.9	--	.08	--	12	2.0	.6		28	12	1.2	.1	2.4	53	38	15	--
Dunbar Creek Nr. Connellsville Aug.9	7.1	68	2	6.9	240	7.3	--	.02	--	31	4.8	4.0	3.2	28	72	4.0	.1	7.9	157	97	74	--
Connell Run at Connellsville Aug. 11	.9	71	3	7.5	358	9.2	--	.02	--	34	5.4	31		135	43	10	.3	3.9	214	107	0	--
Whites Run Nr. Connellsville Aug. 11	4.2	67	6	7.8	162	4.2	--	.01	--	23	3.5	2.6		60	20	3.9	.1	2.3	94	72	23	--
Mounts Creek Nr. Connellsville Aug. 11	3.7	68	5	7.7	159	3.9	--	.01	--	19	4.4	4.3		49	25	4.5	.2	2.1	93	66	25	--
Jacobs Creek at Jacobs Creek Aug. 9	10.6	69	2	5.3	423	9.5	--	.03	--	50	13	7.5	5.4	3	174	8	.1	7.1	300	178	176	--

Youghiogheny River Basin Study

Analyses of water samples collected during period of low flow, August 1950

40240

Date of collection	Discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$		Total acidity as H_2SO_4
																				Total	Noncarbonate	
Sewickley Creek Nr. Youngwood Aug. 11	29.8	63	3	2.85	2590	20	24	4.6	6.0	199	81	95		0	1210	9	.1	.5	1780	1070	1070	294
Jacks Run at Youngwood Aug. 11	10.6	65	6	3.70	3750	18	219	112	10	233	146	40		0	2600	77	.1	.3	4190	2730	2730	1550
Little Sewickley Creek Nr. Herminie Aug. 11	5.0	66	2	7.6	668	5.8	---	.01	----	84	25	15		101	237	8.9	.3	2.5	468	31.	230	----
Sewickley Creek Nr. Sutersville Aug. 9	46.2	69	4	2.70	3080	20	11	9.1	5.0	193	84	228	9.5	0	1500	31	.1	.7	2390	1040	1040	596
Youghiogheny River at Sutersville Aug. 11	1560	69	3	4.6	225	3.9	.5	.03	.50	17	5.2	14		0	91	1.9	.1	1.4	138	68	68	14
Youghiogheny River at McKeesport Aug. 9	1250	71	3	4.00	455	8.2	.6	.07	1.0	37	10	21	3.4	0	170	7.4	.1	.6	277	144	144	44

MISCELLANEOUS ANALYSES OF STREAMS IN KISKIMINETAS RIVER BASIN

Chemical analyses, in parts per million

Date of collection	Mean discharge (second feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$		Total acidity as H_2SO_4
																				Total	Non carbonate	
								LOYALHANNA CREEK AT KINGSTON														
March 14, 1951----		38	4	6.6	142	--	--	--	--	--	--		3.0	13	46	3	--	2.1	--	58	47	--
								LOYALHANNA CREEK AT SALTSBURG														
March 12, 1951----		42	6	2.85	1260	--	--	--	--	--	--		---	0	478	8	--	.8	--	232	232	232
								KISKIMINETAS RIVER AT EDMON														
March 12, 1951----		44	4	3.50	697	--	--	--	--	--	--		---	0	272	5	--	.5	--	158	158	112
								BEAVER RUN NR. APOLLO														
March 12, 1951----		43	7	3.50	437	--	--	--	--	--	--		---	0	165	7	--	.3	--	116	116	64
								PINE RUN NR. APOLLO														
March 12, 1951----		41	5	7.6	154	--	--	--	--	--	--		4.9	32	37	5	--	2.3	--	63	37	--
								KISKIMINETAS RIVER AT APOLLO														
March 12, 1951----		42	--	3.50	698	--	--	--	--	--	--		---	0	255	5	--	.5	--	154	154	100
								KISKIMINETAS RIVER AT VANDERGRIFT														
March 12, 1951----		42	9	3.10	731	--	--	--	--	--	--		---	0	245	5	--	.4	--	152	152	98
								KISKIMINETAS RIVER AT LEECHBURG														
March 12, 1951----		41	8	3.20	652	--	--	--	--	--	--		---	0	225	3	--	.3	--	148	148	92
								KISKIMINETAS RIVER NR. BAGDAD														
March 12, 1951----		43	12	3.20	647	--	--	--	--	--	--		---	0	212	8	--	.6	--	150	150	80

Chemical analyses, in parts per million

Data of collection	Discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Non-carbonata
CONNEAUT CREEK AT CHERRY HILL, PA.																			
June 14, 1951	177	67	4	7.8	331	4.4	.03	36	8.2	15	2.1	111	34	24	.1	1.2	190	124	33
Aug. 13,	5.18	79	6	7.8	307	2.1	.04	38	9.9	11		123	41	9.5	.1	1.5	183	136	35
CROOKED CREEK AT N. SPRINGFIELD, PA.																			
June 14, 1951	26.0	60	3	8.0	262	8.2	.37	37	6.8	2.8	1.1	101	35	5.0	.1	2.4	168	120	38
Aug. 13,	2.94	75	5	8.2	324	7.1	.04	47	8.7	6.0		118	50	7.5	.1	1.9	210	153	51
ELK CREEK NR. NORTH GIRARD, PA.																			
June 14, 1951	200	66	7	7.5	153	3.9	.02	19	4.0	3.0	1.6	43	27	3.8	.1	2.4	100	64	29
Aug. 13,	3.01	77	0	8.0	459	5.3	.06	58	13	16		152	68	24	.1	3.2	287	198	72
LITTLE ELK CREEK NR. PLATEA, PA.																			
June 14, 1951	35.0	63	4	7.2	97.9	3.2	.05	12	2.6	1.0	1.4	25	20	1.8	.1	1.6	72	41	20
Aug. 13,	.50	71	5	7.7	298	1.6	.08	35	8.5	8.9		60	69	14	.1	.9	194	122	73
WALNUT CREEK AT WEIS LIBRARY, PA.																			
June 14, 1951	18.6	64	6	7.7	236	4.8	.07	31	6.6	3.9	1.5	83	31	8.8	.1	1.4	146	104	36
Aug. 13,	1.56	71	4	7.9	308	2.6	.06	42	10	6.1		123	45	6.8	.1	2.0	192	146	45
MILL CREEK AT ERIE, PA.																			
June 15, 1951	4.19	67	6	8.2	300	5.8	.08	41	8.4	5.7	1.4	114	41	7.8	.1	2.5	186	137	43
Aug. 13,	1.06	69	6	7.8	365	4.2	.06	50	11	7.1		145	50	9.0	.1	2.0	220	170	51
SIX MILE CREEK NR. HARBOR CREEK, PA.																			
June 15, 1951	9.77	72	4	8.0	213	3.0	.03	31	5.8	.7	1.8	89	29	3.0	.1	.8	128	101	28
Aug. 13,	.90	74	3	7.7	279	2.9	.08	38	7.5	6.2		94	52	5.0	.1	.7	172	126	49
SEVEN MILE CREEK AT HARBOR CREEK, PA.																			
June 15, 1951	1.43	65	6	7.9	215	5.7	.04	30	5.4	2.4	2.0	84	25	4.8	.1	1.1	129	97	28
Aug. 13,	2.08	71	4	7.7	274	3.6	.06	39	7.8	3.4		108	36	6.5	.1	1.6	165	129	41
TWELVE MILE CREEK NR. MOORHEADVILLE, PA.																			
June 16, 1951	1.69	63	4	7.5	144	4.2	.02	17	3.5	2.5	3.4	33	33	3.5	.1	1.0	93	57	30
Aug. 13,	.14	68	2	7.5	205	4.8	.04	26	5.1	3.8		46	44	6.2	.1	2.0	133	86	48

MISCELLANEOUS ANALYSES OF STREAMS IN LAKE ERIE SHORE REGION

Chemical analyses, in parts per million

Date of collection	Discharge (second-feet)	Temperature (°F.)	Color	pH	Specific conductance (Micromhos at 25°C.)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Noncarbonate
SIXTEEN MILE CREEK AT NORTHEAST, PA.																			
June 16, 1951	1.36	73	4	7.7	213	3.3	.02	26	5.7	3.9	2.1	46	50	5.8	.1	2.2	133	88	51
Aug. 13,	6.91	74	5	6.6	203	1.0	.04	23	5.6	6.0		25	62	5.5	.1	.6	127	80	60
BRANDY RUN AT GIRARD, PA.																			
June 14, 1951	----	60	9	8.1	317	7.2	.32	47	9.7	2.0		142	35	5.0	.1	1.7	198	157	41
RACOON CREEK NR. W. SPRINGFIELD, PA.																			
June 14, 1951	----	60	8	7.8	238	4.1	.25	34	6.5	4.1		96	31	5.8	.1	1.4	153	112	33
Sept. 5,	.44	65	7	7.8	319	6.8	.10	49	9.4	3.4		127	53	5.5	.1	1.5	208	161	57
TROUT RUN AT AVONIA, PA.																			
June 14, 1951	----	57	9	8.1	338	7.0	.13	50	9.4	2.8		135	43	6.0	.1	6.8	211	163	53
Sept. 5	2.30	64	5	7.8	359	6.2	.10	53	11	2.3		141	48	8.0	.1	6.7	240	178	62
FOUR MILE CREEK AT WESLEYVILLE, PA.																			
June 15, 1951	----	--	3	7.9	253	3.8	.01	35	6.8	4.9		96	38	4.5	.1	1.4	170	115	37
Sept. 5,	.05	68	7	8.0	343	2.4	.08	47	11	6.0		103	69	10	.1	1.9	224	162	75
EIGHT MILE CREEK NR. HARBORCREEK, PA.																			
June 16, 1951	----	59	4	7.7	195	---	--	--	---	6.4		44	44	6.8	--	.6	---	78	23
LAKE ERIE AT ERIE, PA.																			
July 26, 1951	----	72	4	8.3	298	---	--	--	---	7.8		109	22	20	--	.4	---	127	34

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Information on the quality and quantity of water in Pennsylvania can be obtained from the following sources—

CHEMICAL CHARACTER OF SURFACE WATERS

1. Pennsylvania Department of Commerce
   State Planning Board
   Room 129 Capitol Building
   Harrisburg, Pennsylvania

SANITARY QUALITY OF WATER

2. Pennsylvania Department of Health
   Bureau of Sanitary Engineering
   534 South Office Building
   Harrisburg, Pennsylvania

GROUND WATER SUPPLIES

3. Pennsylvania Department of Internal Affairs
   Bureau of Topographic and Geologic Survey
   603 South Office Building
   Harrisburg, Pennsylvania

STREAM FLOW RECORDS

4. Pennsylvania Department of Forests and Waters
   Bureau of Waters, Division of Hydrography
   489 Education Building
   Harrisburg, Pennsylvania

PRECIPITATION RECORDS

5. United States Weather Bureau
   Harrisburg State Airport
   New Cumberland, Pennsylvania

SELECTED PUBLICATIONS OF THE PENNSYLVANIA STATE PLANNING BOARD

Publication No.

1—Preliminary Report. 682 pages. 152 charts, December, 1934.

*10—Drainage Basin Study. 3 vols., 611 pages, 1937.

17—Industrial Utility of Water in Pennsylvania. Chemical Character of Surface Water, 1944 to 1946. 1947.

18—The Pennsylvania Zoning Primer (Revised), 1948.

19—Local Powers for Community Development, 1948.

20—A Pennsylvania Recreation Manual, 1949.

21—Planning and Zoning Powers and Procedures in Pennsylvania, 1949. Vol. 1. (Townships of the Second Class, Counties, Regions.)

22—Planning and Zoning Powers and Procedures in Pennsylvania, 1949. Vol. 2. (Cities, Boroughs, First Class Townships.)

23—Industrial Utility of Water in Pennsylvania, 1946-1949. 1952. (A supplement to Pub. No. 17.)

24—Aerial Photographs as Tax Maps, 1952.

25—An Economic Background for Regional Planning in the Anthracite Area, 1952.

These publications may be seen in representative public libraries. A limited number of those listed are available for distribution until the present supply is exhausted. Those marked with an asterisk are now out of print but may be seen in representative public libraries.

The following issues of PENNSYLVANIA PLANNING are still available.

Population, October, 1942.

Handicrafts in Post-War Planning, May, 1943.

Plastics, July, 1943.

Air Photographs, February, 1944.

Light Metals and Stainless Steel, August, 1944.

Topographic Mapping Needs, February, 1945. (For limited technical distribution.)

Community Action for Local Self Development, July, 1945.

Forest Resources, November, 1946.

Soil Conservation, September, 1947.

Minerals Conservation, December, 1948.

Comparative County Data, August, 1950.

Report and Program, January, 1951.

Pennsylvania Anthracite, March, 1952.